Gleanings in Bee Culture

Created to help beekeepers succeed

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Approach signs are very important and should be prominent.

Roadside Honey Selling

By Mrs. F. E. McClintock, Glenwood City, Wisc.

If one lives on a highway with plenty of traffic, selling should be easy. We live on a side road, so every Sunday morning we load up our car and trailer with plenty of honey; we take along our honey signs, stand, lunch, and a couple of magazines to read and we are off.

We have a spot where we have sold honey for about 10 years. We put up the honey stand, and load it up with plenty of honey. There are shelves on this stand for 1, 2, and 5 lb. jars and 5 lb. pails. We arrange the jars so the light shines through them. We stack the pails on the ground up to the first shelf. About 30 pails on each side of the stand make an attractive display. Other honey signs are placed about 200 feet in each direction, facing traffic. We then wait for business.

The first time we did this we didn't do so well, but we kept at it and we have disposed of most of our honey in this way. It is a lot easier than calling on and begging store keepers to take a case or two of honey. Not only that, but we realize about one-fourth more profit this way.

We are hoping to eventually get

B & Z Library

We try to keep plenty of honey on the stand. The light shines through this honey making it very attractive.

a place on the highway so we wont have to go through the loading and unloading process. In fact, we have the spot selected. It is to be "Honey Corners", even if there isn't a house there yet. We would like to do a little truck gardening along with beekeeping.

There are a few things that are important to remember.

1. Select a highly traveled highway, preferably on the outskirts of a large town or city.

2. Have the stand far enough off the road so that there is plenty of room for customers to pull out of the line of traffic. Make sure you are off of the highway property, or the highway cops will stop—and not to buy honey. However, we have sold them honey. Our spot is on railroad property.

3. Have plenty of honey on your stand. You won't attract customers with only a jar or two showing. The markets that attract the most trade are those that have an abundant display.

4. Have clean jars with neat labels.

5. Have plenty of change, at least $15.00.

6. Have a good quality of honey. If your honey isn't light enough, buy some light honey and mix so that you have a good tasting as well as good looking honey. However, have some dark honey in separate containers. There are a few people who prefer dark honey.

7. Have somebody ready to wait on customers. In these days of hurry, nobody likes to wait for some one to take care of them. They are either in a hurry going some place or in a hurry to get home.

8. Stay until almost dark. A lot of people have spotted you on the way out, but put off stopping until on the way back.

9. Don't give up if the first few times haven't been successful. After seeing you there for a few times they will realize you will be there again. Everybody is a little leery about buying from a stranger whom he may never see again.

10. Honey signs. We use three,

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Set up your stand far enough off the road so there is room for a car to pull out of the line of traffic.

A System of Wintering

By Milton H. Stricker, Maple Shade, N. J.

Mr. P. L. Holcombe placing sugar on the escape board of his hive, preparing them for winter.

On a pleasant knoll in the hill section of Northern Jersey you'll find a pleasant white house. In the spacious back yard you will find a row of well-painted, well-kept bee hives. And if you visit this small apiary on one of the few days a year that the proprietor is not engaged in his regular vocation you'll find several laymen there questioning this gentleman. You will also hear him expounding his very sound views on beekeeping. You will also be allowed to examine some very excellent colonies, colonies of bees that demonstrate how colonies of bees should be kept.

The gentleman described is Paul L. Holcombe, Supervisor of Bee Culture in New Jersey. When Mr. Holcombe is not working at the bee inspection project of this state he is indulging in his hobby of teaching better beekeeping methods, a worthwhile hobby if you will consult any one of the beginners who have profited by it.

In this section of the state there is usually a propitious summer honey flow from sumac, sweet clover, and sometimes tulip poplar. There is almost always an autumn abundance from aster and goldenrod. Altogether it looks like an ideal bee territory. But remember the proverb, "All that glitters is not gold"? This describes the Holcombe territory exactly. For though bees have done well all year, and are well able to go into winter with an abundance of pollen, honey, and young bees, winter losses in this area are unusually heavy.

For years Paul has been working with this problem, and several times thought he had found the solution, but each time winter weather took its toll. Often this toll included the best summer producers. Early in this game of forfeits the problems were realized. First this was noted as an area where frost came early, and cold weather would set in long before the fall nectar had been ripened. If this honey was removed and sugar syrup was fed in its place, bees either wore themselves out processing it or temperatures were not conducive to proper handling by either man or bee.

Substituting frames of sealed summer honey was a more satisfactory approach but it did cut down the crop and brought up the problem of what to do with the frames of unripened fall honey. Even this substitution was not the febrifuge hoped for since colonies would often suffer spring dwindling on these well-ripened stores. Worse yet no

Mr. Holcombe has just finished feeding these colonies for winter.

winter packing was found to alleviate this situation, in fact, colonies that were not wrapped seemed to do just a little better than those that were packed.

Moisture, excessive moisture, might be the factor involved here. Although this section of the state was relatively high, above sea level, there is a soil condition that amasses moisture and holds it without draining until spring. The deliquescent honey absorbs the moisture laden air that comes in contact with this saturated earth. The wooden hive parts soak up more moisture from this ground by capillary action helping to add moisture to an already moisture-laden colony. Is it any wonder that death or dysentery resulted?

But the spring of 1949 showed 100 percent success—all the Holcombe hives were alive. A brief look at the system used seems to show that the problem has been controlled.

First colonies were set upon concrete hive stands with a heavy sheet of rubberoid between the ground and the stand. This broke the capillary action and kept the hive free of ground moisture. Next a piece of shingle one inch wide was placed on each side of the escape board. These strips naturally taper from three eighths of an inch to a feather edge. Both of these feather edges were placed to the rear of the colony and the metal cover placed over these. This leaves a three eighths opening as wide as the hive in the front of the colony forming an auxilliary flight hole. If this is thought to be too large for your particular area, it may be constricted to meet local conditions. However, an opening is left and the closure block is removed from the escape hole.

Granulated Sugar is Fed

Simultaneous with this operation which takes place about the middle of October, Mr. Holcombe places about three pounds of white sugar on each one of these prepared escape boards while it is in position on the hive. He smooths this dry sugar down so the cover will fit snugly and is careful to keep the sugar from blocking the escape hole. The hive's lower entrance is then constricted to the smallest opening (three eighths by one inch) to encourage the use of the upper entrance.

Again in December and in January and February the cover is lifted and sugar is added making an average of about nine pounds given to each colony. Certain colonies will take much more than this but others seem loath to use any at all, but if a careful check is made of these latter colonies it will be found that they are utilizing small quantities.

Mr. Holcombe has found that the moisture from the air and also from the hive will be expelled upward and outward by the bees, and as it works toward the auxilliary flight hole it

will combine with the sugar and make an attractive (to the bees) fondant which is worked with a will by them.

Even in areas where there is insufficient moisture to do this, bees will work this sugar. Mr. Holcombe likes this since it helps eliminate the danger of robbing in spring and fall.

Next, it succeeds in getting an easily utilized feed into the colony. This, Holcombe feels, is a big item especially since this nine pounds will be used during the winter months instead of the fall honey. Bees winter more quietly on this sugar solution and at the same time this quality feed helps eliminate dysentery.

This sugar even seems to help the shirkers, and there will be a few of these who do not seem to recognize a good thing when they see it. Here the sugar will absorb some moisture during the winter months making a crude type of "Fuller candy" that will positively be utilized in spring brood rearing.

The reason so many colonies seem so willing to use this sugar stems from their being forced to wallow through it to use the upper flight hole. Bees would rather go up from the cluster than down through the lower hive body, and out the reduced front entrance.

A winter view of Mr. Holcombe's apiary.

This year, early autumn found Mr. Holcombe applying these upper entrances and dry sugar to each colony. The same system was being practiced by many who became proselytized last spring when they saw the strength of these same colonies and the zero winter loss.

[After the foregoing was received on Dec. 2, 1949, we learned from Mr. Stricker that the bees wintered successfully by this method the following winter.—Ed.]

"The Keeper of the Bees Has Gone Home"

"For none of us liveth unto himself and no man dieth unto himself". These words embody one of the profound concepts of man's relations with his fellows. They apply with particular force to Frank Pellett. He was an integral part of his community, even as it was a part of him; his community was as wide as his life and travels. Wherever he went, Frank Pellett touched the lives of men and made them richer.

"Friend" is one of the most expressive words which has come down to us from the old Anglo-Saxon. Frank Pellett was a unique, a special friend. I am sure many people thought of him in that way.

Frank Pellett was acclaimed widely because of notable achievements in his vocation; of even more importance were the innate stature of the man and the influence which emanated from him. In a very real sense it may be said of him as it was said of the Master, "He went about doing good". The good which Frank Pellett did, unlike that attributed to Caeser, could not be interred with him. It was so closely a part of the lives of men and women who knew him, so deeply imbedded in their being, that it will live long after Frank Pellett himself is forgotten, to leaven the whole lump of society.

A mighty man is gone from us; his seat at the council fire is vacant, his voice at the forum is stilled. The moving finger writes and, having writ, moves on. These things are done; they are a part of life and death. It remains for those of us who experienced his friendship; who profited from his wisdom; whose burdens were lightened by the warmth of his smile, by the firmness of his handclasp; who sensed the strength of the man; it remains for us to ponder well the qualities which marked this simple Iowan, great.——By Edw. A. Wolfe, Director of Public Relations American Beekeeping Federation, Atlantic, Iowa.

Advertise – Believe in It – Hold the Price

By L. D. Klopfenstein, Keene, Texas

Some years ago a famous author said, "If a man builds a better mousetrap than anyone else, the world will beat a path to his door." However, the author did not qualify the statement. I think that in general this would be true if anybody knew about the mousetrap, but how will anybody find out that the man has the mousetrap unless the man leaves the woods or by some accident someone finds him there? This is basically true also in the honey market. I recognize that perhaps the major problems of the beekeeping industry are not concerned with the little fellow who has only a little honey to sell, but I believe that if all these little men would sell their share that undoubtedly there would be a greater demand for honey on the national market.

For the past ten years in North Dakota, where I previously lived, and also in South Dakota as I have lived in both states, I found the best advertising was, of course, the product itself. At first I went around to the business places and to my friends telling them I had honey, and showed them a small sample jar which I carried in my pocket. I asked them to try some on a toothpick which they took from a box of toothpicks which I provided. Taste makes the difference, and if they had a sweet tooth I got an order. The next time I came to town I brought it in. Good honey will advertise itself if a few people can be induced to try it. I had only to follow this procedure the first year. After that all I did was let my customers know the honey was ready and they came after it.

I have never sold my honey for less than 20 cents a pound even when selling it in quantities of five to ten gallons to a customer. Of course, I think that the quality of the product has a great deal to do with the selling. Most commercial honey is heated to prevent granulation and much of the aroma and flavor is lost in this way. If sweet clover honey is extracted here in August, the temperature is sufficiently high that it can be handled without additional heating. I believe that the exceptional flavor of the comb honey is due partially to the wax which absorbs flavor from the honey. For this reason I do not filter my honey and some wax is left in the honey. (This may contribute to granulation, but flavor is preferred to the consistency of the honey. Many of my customers prefer honey in the granulated form.) All except the honey which I keep for my own use I sell immediately to customers in this locality. After a few disappointments nearly everyone has found out that the supply is limited and will last for only a short time. If they are to have enough honey to last them through the winter until the next season, they must purchase it early. My white sweet clover honey is almost as white as white syrup.

Selling honey at this price is profitable, for my customers supply their own containers and own labels, if any, and all I have to do is open the honey gate in the tank and fill their containers as they bring them, which makes the cost of the overhead very low. No labels, no paste, no containers, and no labor for bottling. Nearly all my honey is sold in one-half gallon jars. In almost every instance the customer is back next year to buy an even greater quantity than he bought the preceeding year, and this type of business is what the beekeeper would like to have. It seems I have no trouble selling my honey even though there are beekeepers in Minnesota and other states who will ship honey into this locality in 60-pound containers for $8.50 a can. One of my neighbors has had one of these containers for three years in her basement and used it only for cooking because she said that my honey was superior in flavor to that which she had bought elsewhere.

I realize the large commercial beekeeper is going to say, "Certainly, he doesn't sell enough honey to make any difference, anyway." But 1100 pounds of honey in a town of 3000 people, with the farm area surrounding it, is not a bad average consumption even if there were no other honey sold. But three other commercial producers kept their honey on the shelves in the stores throughout the entire year. This product sold for $1.25 for a five-pound pail, or in one-pound jars

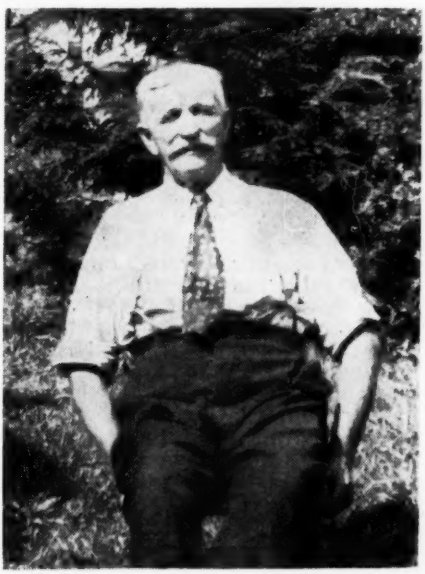
for about 35 cents a pound. Primarily, the higher price is due to the cost of distribution.

Be Proud of Your Product

I believe there are two other things which perhaps militate against the individual beekeeper more than anything else. Perhaps the greatest difficulty is the fact that the beekeeper is not justly proud of his own product. When a man is not proud of his own product, he doesn't have the nerve to ask the price which he should receive for it. I am convinced that my product is superior or equal to any that can be bought anywhere, no matter what the price. For that reason I do not hesitate to ask three to five cents more a pound than others in this locality. I explain to my customers why I believe my product is better, and there are still people who are willing to pay a little more for "a better mousetrap". It is true that the average American is likely to buy if he feels he is getting a bargain. But marking down the retail price of an item is not always a satisfactory procedure. It usually tends to make people believe that sooner or later there will be a sale, and if they wait long enough they will be able to buy it for less. And while they wait, they do not eat any honey. Many well known products today are sold at a fixed retail price all over the United States, and this price does not change. There are no special deals, sales, or other inducements to buy. If we regard honey as it is—the best natural sweet—we should not have to reduce the price to sell it.

Some weeks ago a man came to buy some comb honey. I had been selling large super combs in the frame for $1.00 each. This man offered to buy eleven frames and then started to haggle over the price. I pointed out to him that he was getting his comb honey for about 30 cents a pound, and I saw no reason to reduce my price as I felt that this, even in large quantity, was not too high. He then explained that he could buy much cheaper other places, and I told him if he could, I was perfectly willing that he should, because I had no trouble selling what comb honey I had for this price. If he cared to buy elsewhere, that was all right. I noticed, though, that he did not leave without the eleven frames of comb honey, and I am certain that he probably knew he could not buy it cheaper elsewhere, either.

Perhaps these three things—proper advertising; the feeling of confidence in your product; and the steadfast determination not to reduce the price—are the three greatest objectives which the little beekeeper needs in helping to hold the market on honey.



He Has Read Gleanings Since 1884

Mr. F. D. Bowers of Youngville, Pa., has taken Gleanings since 1884. He says: "That year I ordered a Clark cold blast smoker, a Novice extractor, and a copy of the ABC book. In those days, A. I. Root offered a Clark smoker to anyone who pledged himself not to use tobacco. I did not get my smoker that way, as I figured he would have enough orders to fill in that way without mine, although I never did use tobacco.

"I am 85 years old, and am thankful for my friends and health, and have much to be grateful for. I have sold all of my colonies but nine, as I want to get stung once in a while."

Dr. E. F. Phillips

Dr. Everett Franklin Phillips

However much the immediate family of a man in public life be forewarned, the death of such a man to all others seems sudden and without warning. This is very true in the death of Dr. E. F. Phillips, briefly mentioned editorially in the September number. A telegram reached us on August 21, when the last form for the September number of Gleanings was already on the press. The run had not started so we hastily made room for the four lines on page 552. It could not be helped that his name appeared on page 545 of that same number, in the list of speakers at the dedication of the Langstroth Honey Garden, in Philadelphia, on October 20.

That Dr. Phillips, himself, did not realize his condition is shown by the fact that only a week before, Gleanings received a letter from him in regard to some proposed articles he was planning to write.

Scarcely a month before, I had been looking forward to meeting Dr. Phillips who was scheduled to appear on the program of the summer meeting of the Massachusetts

Beekeepers' Association. Some two weeks before that, I had learned that he was not looking well and so, almost my first question was in regard to Dr. Phillips. I was sorry to learn that he could not be at the meeting, for his ankles were so swollen he could not walk. He had, however, prepared his part of the program for the meeting at Amherst and also the one at Andover, two days later, Mr. George Rea representing him and reading the material which Dr. Phillips had prepared. This was our first information that the nature of the trouble, whatever it was, undoubtedly was serious. I knew that Dr. Phillips would not remain away from a meeting honoring L. L. Langstroth except for a very good reason.

Dr. Phillips' last visit in Medina was on June 15, 1950. The day was hot and he sat in his shirt sleeves having a long talk with E. R. Root. Of course, neither of them knew that this was to be their last talk. When they shook hands, my brother ventured that he might not have too many years left. It would have been a great surprise to him had he known that shortly after his own 89th birthday, the news would come of Dr. Phillips' death at the age of 73. The picture of the two, as they sat on the porch, since it may turn out to be the last picture taken of Dr. Phillips, is reproduced from the November, 1950, number of Gleanings.

The portrait shown on the opposite page is one that has not before appeared in Gleanings, and to our knowledge it is a hitherto unpublished photograph but one that his family and friends all prize.

From both a practical and scientific standpoint, members of the beekeeping industry for countless years will continue to benefit from the work of Dr. Everett Franklin Phillips. Kind thoughts, good deeds never die.—H. H. Root.

* * * * *

In the above, my brother has referred to Dr. Phillips' last visit to Medina. It was during the long talk we had that I said to him: "You have failed in health, Dr. Phillips. Neither you nor we can tell how long you will be with us. Inasmuch as you were the first scientist after Francis Huber to make a great contribution to our knowledge of the entomology of the honey bee, Gleanings would like to publish a story of your life and what you have accomplished. Many of the present generation do not know of your important studies on parthenogenesis, on bee diseases, etc." The Doctor made no answer at first but finally said, "Well, that shall be for you to decide".

My story in the November 1950 number of Gleanings is the answer. It appeared as a brief account of the life and accomplishments of a great man. It stands, today, less than a year later, as his obituary.—E. R. Root.

For the benefit of readers who may not have the November 1950 Gleanings we are reproducing the major part of the article:

"Dr. E. F. Phillips is quoted more than any other man in scientific research on the subject of beekeeping. Some four years ago he re-

(Continued on page 620)

Dr. E. F. Phillips and E. R. Root in their last interview at Medina. The photo was taken on the front porch of E. R. Root's home.

Breeding Improved Honey Bees

IV - Inbred and Hybrid Bees

By William C. Roberts and Otto Mackensen
U.S.D.A., Agr. Res. Adm., Bureau of Entomology and Plant Quarantine*

(Continued from September)

Many beekeepers have produced excellent queen daughters of imported stock or daughters of some selected queen that they obtained from other beekeepers. The new stock queens usually mate with drones of the beekeeper's own stock. If the sex alleles of the two stocks are different, the eggs from most matings are high in hatchability.

The new stock may also be genetically different from the stock that the beekeeper already has. Thus the queen daughters of the imported queen produce hybrid progeny after mating with the drones of the beekeeper's own stock. These may be racial hybrids or hybrids between strains of bees. Such queens often produce excellent colonies with high-quality brood. The beekeeper then praises the imported stock, apparently without realizing that his own drones contribute half to the genetic make-up of the workers in these superior colonies.

The story is often quite different after a few generations of backcrossing to the original drones or to drones produced by the hybrid daughter queens. Segregation and recombinations occur, and in the third or fourth year the queens and their progenies are frequently more variable than the original stocks. By this time the beekeeper concludes that the original imported stock was not so good after all or had "run out"; so he gets some other new stock for breeding purposes.

By this procedure the colony superiority may again be restored to a high level. It also falls again after a few years. To keep the quality of his bees up, the beekeeper continues to get new or different breeding stock every few years.

These results are best explained as due to hybrid vigor and the crossing of stocks having different sex alleles. The first-generation colonies were superior because they were hybrids—that is, they were headed by cross-mated queens whose worker progeny were hybrids between the imported and local stocks. By mathematical analysis of the action of genes in future generations of segregation and recombination after outcrossing, it can be shown that by selection alone the beekeeper is powerless to keep this stock at the high level of production and uniformity exhibited by the first-cross progeny.

Most of the complicated physiological characteristics, such as egg production and vigor, are dependent for their maximum expression on the harmonious interaction of many genes and their alleles. Since these genes are located on many chromosomes and there is linkage of genes on the same chromosomes, the likelihood that certain factors conducive to vigor will be linked with injurious factors reduces the chance of obtaining maximum vigor by selection within inbred lines. Moreover, in breeding within a line the sex-allele problem again arises and selection is considerably weakened by a high proportion of low viability matings.

In plant and animal breeding it has been found that certain hybrids are superior to the lines from which they are produced. The superiority of hybrid corn is unquestioned. Animal breeders have also obtained superior hybrids. Because a large proportion of the progeny is required for breeding purposes to maintain the lines, animal breeders have not used hybrids for extensive production. However, in hogs a modification of the controlled-hybrid program is often used. This is the crisscrossing of three lines, using hybrid sows and purebred boars in each generation. The three-breed crossed pigs are more productive than those of the pure breed. Hybridizing inbred lines of chickens has become more popular and profitable within recent years.

Hybrid vigor is generally thought to be a characteristic of dominance. Dominant genes tend to have more favorable effects than their recessive alleles, and in a hybrid the dominant genes find expression at more loci than do the recessive alleles. If one inbred line is dominant (AA) at one locus and recessive at another (bb) and another inbred line has the reverse (aa and BB) characteristics, the hybrid will have

*In cooperation with the Wisconsin Agricultural Experiment Station and Louisiana State University.

one dominant gene at each locus (AaBb). If both loci contribute to vigor, then the hybrid will be superior to either inbred line. It is also thought that certain genes contribute more to vigor in the heterozygous than in the homozygous condition.

An ideal breeding system is the production and maintenance of purebred but unrelated lines and the crossing of these lines for the production of superior hybrids. Not all—in fact, only a very few—of the inbred lines will give outstanding hybrids when crossed. The breeder, however, can perpetuate those lines that nick favorably for the repeated production of superior hybrids.

Plant breeders can take advantage of hybrid vigor because of the large number of seeds produced in each generation and the relatively low cost of producing seed for the production of hybrids. Animal breeders, on the other hand, are not in this favorable position. The expense of producing and maintaining highly inbred lines together with the small number of offspring makes this practice unprofitable, except with chickens and to some extent hogs.

Honey bees more nearly approach the condition existent in plant breeding. Less than one percent of the daughter queens and drones of a queen is needed to perpetuate the line. Whereas only four to ten queens are needed in each generation to insure the continuance of an inbred line, three or four outcrossed queens can be used to produce 10,000 hybrid queens.

The low cost of producing and maintaining inbred lines of bees, together with the large number of offspring that can be produced from a single breeding individual, suggests that a bee-breeding program based on hybrid vigor is practical. The effect of the sex alleles on egg hatchability further indicates that other breeding plans, such as line breeding, are slow and expensive because too many poor-viability matings occur.

To produce hybrid bees the bee breeder may cross different races, strains, or inbred lines of bees. Unless these bees are homozygous for the desired characters, the resulting hybrids will be variable. Furthermore, other crosses of the same races or strains will differ from each other. A sure method of having uniform hybrids is to have strains homozygous for the desired characters.

The fastest method of increasing homozygosity in a line of stock is to inbreed. Inbreeding is the mating of closely related individuals, such as parent-offspring, brother-sister, or cousins. Related individuals are likely to have many of the same inherited qualities, and mating of these individuals tends to fix these qualities in a homozygous, or pure, condition. Inbreeding is used chiefly for the one purpose of producing homozygosity, or genetic likeness of offspring.

Inbreeding within a population tends to separate the population into many distinct families. Each family becomes uniform within itself but distinctly different from other families. Selection between families of such inbred lines can then be made with more accuracy than selection between individuals. This is especially true for characteristics of low heritability, such as egg production and vigor.

The inbred individuals become lower in average merit than noninbreds. They are not nearly so vigorous or productive. Inbreeding is the severest test of the hereditary worth of the individual that can be made, for it causes fixation of both good and bad traits.

Because of the mating habits of bees, it is necessary that all inbreeding matings be made by artificial insemination. After highly inbred lines are obtained, it is necessary to control matings to insure keeping the stocks pure. Artificial mating is the only safe method known at present with bees.

If the breeder makes very close matings, such as mother-son, brother-sister, or backcrossing to a queen, he can accomplish very little by individual selection. It is true that he can accomplish a great deal when selecting for color or other visible characteristics that are highly heritable. However, most of these characters have little economic importance. Characteristics of greater importance, such as brood production, vigor, or resistance to disease, are not visibly detectable in individual queens or drones. Selection for these traits is more effective after the lines are inbred.

To determine traits in inbred lines, crosses are made to a line or lines known to possess certain in-

herited qualities. Thus the test of inbred lines for characteristics of low heritability is to cross all inbred lines to certain "tester" lines and compare the unknown inbred lines with each other. Selection then is between inbred lines.

The mathematical consequences of the various systems of inbreeding have been worked out by several authors. Kalmus and Smith (1948), Crow and Roberts (1950), and Polhemus, Lush, and Rothenbuhler (1950) have reported on the various systems of inbreeding possible with honey bees. The formulas of Crow and Roberts can be used to determine the inbreeding and relationship coefficients of stocks of bees.

Before beginning to produce inbred lines the bee breeder chooses the stocks that he will use. He may desire to cross two or more of the selected noninbred stocks before beginning to inbreed.

He should obtain a few queens each from a large number of sources and test all queens for one season under uniform conditions in a single yard if possible. In this way he can get first-hand knowledge of the potential breeding stocks. He may select some colonies for immediate inbreeding and perhaps allow the others to cross freely for use as future breeding stocks.

It has been shown in both plant and animal breeding that the best hybrids usually come from crosses of unrelated stocks of different origin. The breeder should therefore select a number of different types of bees. He should select some black, some yellow, and some queens intermediate in color rather than all of one color type. He should also select some long, slender and some short, stubby queens. He should obtain some gentle bees and perhaps even one or two lines with a lot of evil temper.

The superior hybrids are genetic heterozygotes. They are the result of crosses between stocks that are unlike genetically. Differences in type, color, or temper denote genetic differences for these characteristics and probably also for other characteristics that the breeder cannot readily see or measure.

There is some evidence that gentleness in bees is dominant over viciousness. In one of our experiments the hybrids of a cross between a vicious and a gentle line were gentle rather than vicious. The vicious line may bring into the hybrid the few genes that mean the difference between an average and a superior hybrid bee. By no means are we suggesting that we need viciousness in bees. This is merely an illustration of how genetic diversity might be obtained.

Once the stocks are chosen, close inbreeding is begun to fix the lines. The breeder should know which matings to make to obtain the de-

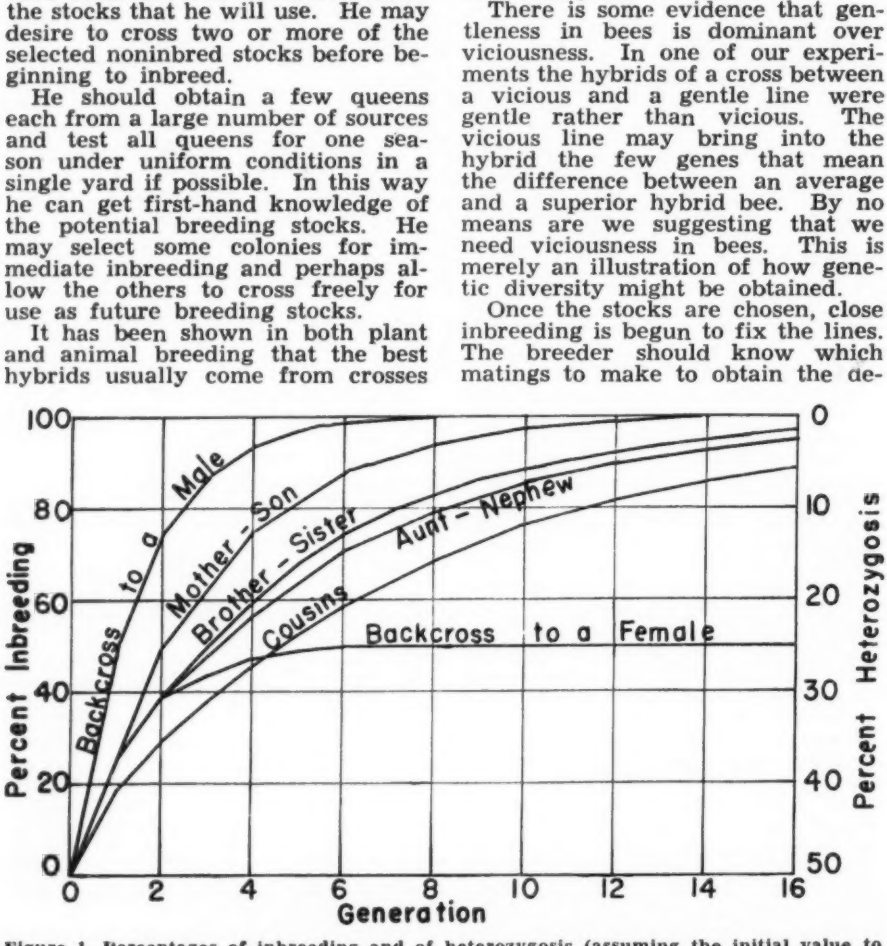


Figure 1. Percentages of inbreeding and of heterozygosis (assuming the initial value to be 50 percent) in successive generations of various systems of inbreeding in honey bees. (From Crow and Roberts, 1950.)

sired inbreeding in the shortest time with the least expense. Figure 1 shows the percentage of inbreeding obtained in successive generations by the various systems of inbreeding possible in honey bees. The percentage of inbreeding is the percentage of heterozygous loci of the original selected individuals that become homozygous by inbreeding. Inbreeding has no effect on genes already homozygous in the lines; so we are concerned only with those genes that are not homozygous. Since the bee breeder cannot tell which genes were originally heterozygous and what effect each gene has, he can only measure the increase in purity of the stocks by the percentage of inbreeding.

With present techniques the two systems of mating that increase inbreeding fastest, backcrosses to a male and a mother-son, are not advisable economically. Loss of breeding individuals, and consequently of inbred lines, is high when these systems are followed.

The next most rapid method of increasing inbreeding is by brother-sister matings. This system is recommended, because at present it is the most practical of all systems shown. For the first two generations the systems of brother-sister and aunt-nephew matings and backcrossing to a female are identical in percentage of inbreeding. Because the aunt-nephew system depends upon the use of only one drone for each mating, this system is not so dependable for insuring the survival of an inbred line. Using only one drone to inseminate a queen often results in a poorly inseminated queen, who may turn into a drone layer before the next generation is produced.

Because drones mature more slowly than queens, backcrossing to a female produces inbreeding to 37.5 percent faster than brother-sister mating in time consumed per generation for the first two generations. Thus backcrossing to the original queen for the first two generations followed by brother-sister matings in all future generations is recommended for the production of inbred lines in the shortest time with the greatest chance of success in maintaining the inbred lines. Multiple drone matings may be made in all generations to insure good inseminations.

The bee breeder should know what inbreeding will do to his stocks. If he starts an inbred line by backcrossing and then makes brother-sister matings as illustrated in Figure 2, he may expect that each line will become more uniform as inbreeding progresses. Most noticeable, however, for the first few generations will be the quality of the brood.

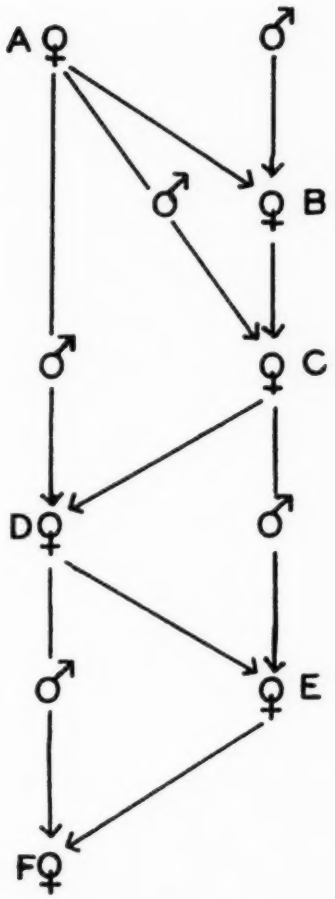


Figure 2. Arrow diagram of a recommended system of mating for inbreeding in bees. After two generations of backcrossing to a selected queen, the line is continued by brother-sister matings.

If queen B, a daughter of A, is mated to several drones that are sons of A, the egg hatchability of queen B will average 75 percent. A daughter of queen B, queen C, mated to sons of queen A will have egg hatchability that will average either 75 or 50 percent. If her egg hatchability is 50 percent, the line has been reduced to two sex alleles, and queens D, E, and F will also

have eggs of 50-percent hatchability if mated as shown in the figure. If queen C has egg hatchability of 75 percent, then D may also be 75 percent, but somewhere not far from E or F egg hatchability will probably drop to 50 percent and all future generations will remain at that level. However, by selection it is possible to keep egg hatchability at 75 percent, but the breeder would be reducing the effectiveness of inbreeding slightly by selection against certain alleles. It is advisable to select the 50-percent egg-hatchability matings in the C or D generation and thus quickly reduce all inbred lines to two sex alleles, so that they will also have 50-percent egg hatchability. If this is done, an analysis of the sex alleles is more readily accomplished. By test crossing to identify the sex alleles in each line the breeder can then predict which crosses will give high egg hatchability in hybrids and which crosses will give intermediate or low egg hatchability.

Other than improving egg hatchability, the bee breeder can accomplish very little by selection while inbreeding. He can select queens and drones in each generation for color and general appearance, but selection for most other characteristics will be very inefficient.

In one season of inbreeding it is possible to produce a number of sister queens of the D generation and mate them to their brothers (drones produced by their mother queen C). These queens will be wintered, and the following year the breeder can make test crosses while continuing to inbreed the lines by brother-sister matings. It is advisable to test-cross the inbred lines at the E generation of queens (50-percent inbred). Brother-sister mating should be made each year after the first to insure continuing the inbred lines until they are selected in hybrid combinations.

Since egg hatchability in inbred lines with two sex alleles is only 50 percent, the inbreds do not develop colonies with sufficient populations to permit accurate evaluation of such economically important characteristics as honey production, swarming tendencies, and wintering. However, such qualities as tongue length, wing length, and temper may be measured in inbred workers. It is also possible to select for such characters in the queen as size and number of ovarian tubules. This selection in inbreds as inbreds is supplemental to rather than a substitute for selection between inbred lines when in crosses with other inbred lines.

All crosses should be made artificially and the colonies tested under environmental conditions as nearly uniform as possible. The various hybrid crosses will differ, but the individuals of a given hybrid will be uniform as a group.

After it has been found that the colonies having (line 3 x line 4) hybrid queens mated to drones produced by (line 1 x line 2) hybrid queens are superior in production, then the breeding stock to produce this four-way hybrid combination can be distributed for commercial production. A commercial queen producer then needs only two artificially mated breeder queens from the breeding source to produce several thousand hybrid queens.

One of these breeder queens is used to produce daughter queens that will head the 50 or more drone-producing colonies necessary to supply ample drones. An inbred queen of line 1, artificially mated to drones from inbred line 2, is the mother of the hybrid daughters needed to furnish drones. Since drones are produced parthenogenetically, those drone-producing queens can be naturally mated to the drones of the breeder's own stock.

An inbred queen of line 3 artificially mated to drones from inbred line 4 is used as the breeder queen. Her daughters will be hybrids (3 x 4). These virgins are naturally mated to drones produced by the (1 x 2) hybrid queens. The honey producer receives (3 x 4) hybrid queens mated to (1 x 2) drones, and the worker offspring in his colonies will be four-way hybrids—(1 x 2) x (3 x 4).

The test queens produced at Kelleys Island and distributed by the Honey Bee Improvement Cooperative Association are produced in this manner. In the last article of this series we will describe the methods and practices used in large-scale production of four-way hybrid bees at Kelleys Island.

Literature Cited

Crow, James F., and William C. Roberts. 1950. Inbreeding and Homozygosis in Bees. Genetics 35: 612-621.

Kalmus, H., and C. A. B. Smith. 1948. Production of Pure Lines in Bees. Jour. Genetics 49: 153-158.

Polhemus, Martin S., Jay L. Lush, and Walter C. Rothenbuhler. 1950. Mating Systems in Honey Bees. Jour. Heredity 41: 151-155.

Whip 'Em Up in a Jiffy

By Mrs. Benj. Nielsen
Aurora, Nebraska

Honey bran muffins. —Photo courtesy Kellogg Co.

There's nothing better to round out a slim meal than a honey-way quick bread. You lift the lid of the bread box and find that small (and not so small) raiders have been there before you and there's not enough bread for the coming meal. Never mind—in a twinkling you can stir up a honey-way concoction that will add new branches to your cooking laurels.

Muffins and buns are at their best when freshly baked (and hot with heaps of butter and honey) but nut and fruit breads are much better for an aging period—if you are lucky enough to be able to keep any that long. Fruits and honey merge to produce inimitable flavors that call for seconds and thirds and frequent baking sprees. Wrapped in aluminum foil and tucked in the bread box you are always smugly ready when unexpected guests drop in. Thin buttered slices, steaming hot honey-sweetened coffee or tea. Yum!

Honey Bran Muffins

Three tablespoons shortening, ½ cup honey, 1 egg, ⅓ cup buttermilk, 1 cup bran, 1 cup sifted flour, 1 teaspoon baking powder, ½ teaspoon salt, and ¼ teaspoon soda.

Blend shortening and honey. Add egg and beat well. Add milk and bran; let soak until most of moisture is taken up. Sift dry ingredients together; add to first mixture, stirring only until flour disappears. Fill greased muffin pans two-thirds full and bake in moderately hot oven, 400 degrees F., about 25 minutes. Yield: 8 large muffins (3 inches in diameter) or 16 medium muffins (2¼ inches in diameter).

Honey Currant Buns

One-half cup bran, ½ cup currants, ¾ cups milk, ¼ cup honey, 2 cups sifted flour, 4 teaspoons baking powder, 1 teaspoon salt, and ¼ cup shortening.

Combine bran, currants, milk, and honey; let stand 10 minutes. Sift together flour, baking powder, and salt. Cut in shortening until mixture resembles coarse meal. Add bran mixture, stirring to form a soft dough. Turn onto lightly floured board and shape into roll. Divide into 12 equal pieces, shape into balls and flatten to about ½ inch thickness. Place on greased pan, brush with honey, and bake in moderately hot oven, 425 degrees F., about 20 minutes. Serve while warm. Yield: 12 buns (2½ inches in diameter).

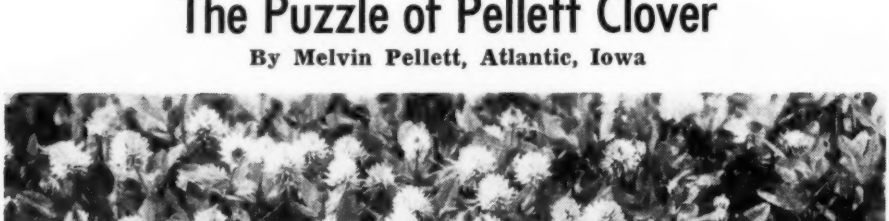
Honey Fruit Nut Bread

One egg, well beaten, ⅔ cup honey, 1 cup buttermilk, 1½ cups bran, 2 cups sifted flour, 2 teaspoons baking powder, ½ teaspoon soda, 1 teaspoon salt, ½ cup chopped dates, 1 cup seedless raisins, and ½ cup chopped nutmeats.

Combine egg, honey, buttermilk, and bran. Sift flour with baking powder, soda, and salt; add to first mixture with fruit and nutmeats. Stir only until combined. Bake in greased loaf pan, with waxed paper in bottom, in moderate oven, 350 degrees F., about 1 hour. Yield: 1 loaf.

The Puzzle of Pellett Clover

By Melvin Pellett, Atlantic, Iowa



New Clover which spreads from the root. Iowa Beekeepers' Association has advised that it be named Pellett Clover. In full bloom 14 months after planting by root divisions, rows planted four feet apart had entirely grown together.

The new clover, which has an entirely different habit of growth from our common clovers is creating a widespread interest among beekeepers and agriculturalists alike. It spreads freely by rhizomous roots underground and in trial plantings has made such a vigorous luxuriant growth to appear as a truly startling development. Where it does well it blooms profusely in June and early July. It has florets such that the nectar is readily available to short tongued insects and the bees work it freely. It appears to be among the best of honey plants, though this may not be true in all localities. This clover has grown so well in our plots to appear as a great discovery. However, it has some drawbacks which are likely due to the lack of a suitable nitrogen fixing organism. Some of our better legumes in use today were also slow in taking on and time will tell whether this clover will adapt to serve a widespread useful purpose.

This clover, **Trifolium ambiguum**, is a wild clover from Russia and reportedly grows in the Caucasian Mountain region. It first came to the American Bee Journal test garden here in in 1941 when my father, Frank C. Pellett, received a dozen or more seeds from a helpful correspondent. It has since been named "Pellett Clover" by the Iowa Beekeepers' Association in recognition of Dad's efforts with the test garden. This clover multiplies rapidly by rhizomes underground and from not more than a half dozen plants which were established from these few seeds in 1941, has come an increase of many thousands of roots which have been successfully and successively transplanted into further plantings.

In April of 1944, roots were dug where they had spread from the original planting of the few seeds. They were divided and planted into rows four feet apart, spacing the plants approximately 18 inches apart in the rows. The transplants took hold quickly and soon a row of clover emerged where the plants had been set. Within a few weeks new shoots began coming up alongside the rows from the spreading root system underground. The rows gradually became wider until in five months from the time of planting they were beginning to grow together in places. Apparently the rhizomes continue to grow underground after frost and until the

ground actually freezes up. This clover greens up a little earlier in the spring than other clovers. At first only basil leaves appear which may be exceedingly large in size and with leaf stalks up to a foot long or more in height. In early June the flowering stems began to come out and grew to a length of two to three feet. Fourteen and one-half months after the rows were set four feet apart, the plot was solid with a heavy growth and fragrant bloom with the bees humming. A heavy set of seed ensued. This being the first time, we guessed wrong on how to handle the harvesting and most of the seed shattered on the ground. The roots continued to grow and thicken up until the amount of root growth was remarkable. In the fall of the third season we attempted to plow some furrows through the plot as an experiment and to gain some roots. A two plow tractor was used to plow only one furrow at a time. The tractor would stick and the wheels spin and we would back up and start again and after several such trials a furrow could be plowed. The furrows turned over were so full of heavy roots that an observer compared it to plowing an asparagus bed. Such heavy root growth should be most desirable for erosion control and for building humus into the soil.

The above paragraph tells the story without exaggeration of our first row planting of Pellett Clover. Some later plantings have started out just as well though on a less fertile soil have failed to hold up as well during the past year when we had extremely dry weather the first half of the growing season.

Although this clover grows so well in our plots most of the time that it does not appear to have anything lacking, we were unable to find nodules on the roots the first several seasons. Quite a number of experiment stations and bacteriologists are working with it in an effort to find a nitrogen fixing organism truly beneficial to this plant. A large number of inoculants used for other legumes have been tried without any apparent results. At one time we found considerable evidence of nodulation in our plots and it appeared then that the problem might be nearing solution, but further investigation did not prove that these nodules were caused by an organism of any great benefit to this plant. This problem is compelling national attention among soil bacteriologists and we are confident that it will be solved.

Reports we have recieved from trials of this clover, north, south, east and west, the past two years, indicate a wide variation in its behavior under different conditions. Some reports are very encouraging and some say that it grows very poorly in certain localities. It is hard to attribute these differences entirely to soil types on which the plantings have been made. These limitations in adaptation are likely due to lack of a suitable inoculation. Whereas this clover has appeared to grow best on fertile soils, we hear from a correspondent in Virginia, that although he has a fertile soil upon which other clovers grow luxuriantly, this one is described as struggling along without much vigor. About the same time we hear from a correspondent in Texas who describes his location as a windswept plain with sandy soil. He reports Pellett Clover as growing vigorously for him. Such conflicting reports make it something of a puzzle, since these two had results the opposite of what we had come to expect from their apparent soil types. We remember that some other legumes have been quite slow in adapting and to come into general use. Although our enthusiasm for this plant, which has been most high, is tempered somewhat, we are by no means discouraged. When it grows well, it grows so well as to be most promising and such wide interest has developed that from somewhere should come the answer of adaptation. In case any readers of this article who are experimenting with this plant should notice evidence of nodulation on the roots or other information which might be enlightening in this regard, we hope you will correspond with us.

An observer once asked of a soil conservation official who was visiting the test gardens if this clover might be hard to get rid of. The answer was something like this: "Man, wouldn't you like to have a clover you couldn't get rid of?" I might add in this regards that we see no tendency for it to spread to any great extent beyond the area in which it is planted. Eradication can be managed by repeated plowing and cultivation, that is if anyone should want to do away with a clover growing so well that it is hard

(Continued on page 638)

The Baxter Building Finished

By W. E. Baxter, Blair, Nebraska

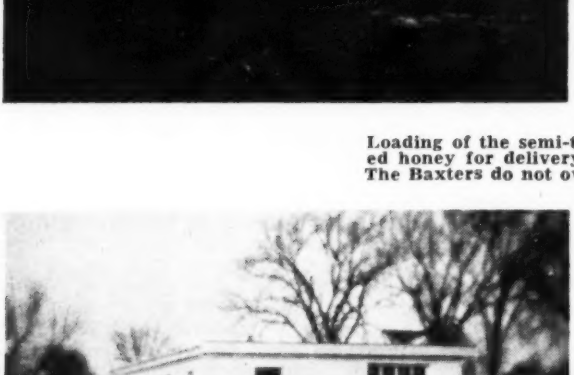
[Pictures of the unfinished Baxter building appeared in the January number. In response to our request for a picture of the completed building Mr. Baxter has kindly sent the following. —Ed.]

The size of the building is 30 x 50 feet and there is a full basement. The basement and half of the upper part of the building are used for packing honey. We plan to have a packing capacity of 5000 lbs. a day, soon. We have shipped over 120,000 pounds of honey in the last year and expect to increase that amount considerably in the coming year. Our honey is shipped to customers in four states in this area Some honey has been shipped as far away as Georgia and California.

The front of the new Baxter building with the steps leading up to the living apartment. The building faces the southeast.

We have a five-room apartment in the west half of the upstairs in the building. It is certainly handy to have the business and living quarters together.

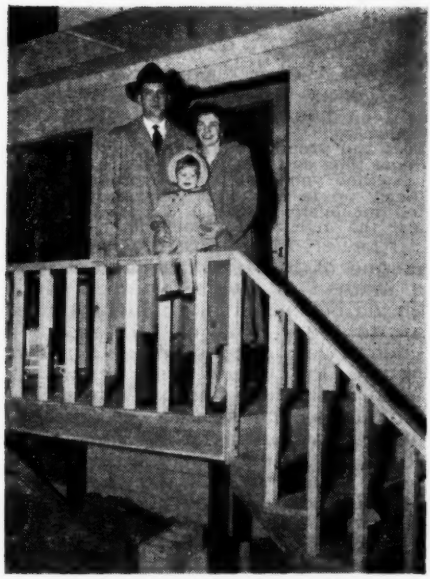
Loading of the semi-trailer with packed honey for delivery in Kansas City. The Baxters do not own the big truck.



I am including some pictures of my family taken at our apartment at Christmas time. I am also sending two other pictures of the building, one showing the loading dock door and one of a large truck loading honey packed in glass to be shipped to one of our customers in Kansas City, Mo. This truck load was packed in six days at our new place.

This picture shows the east end of the building with the loading dock door. The pick-up truck belongs to the Baxters.

Inside the new apartment last Christmas.



W. E. Baxter and family on the front steps.

Avoid Poisoning Bees with Parathion

By George F. Knowlton

Utah Agricultural Experiment Station, Logan

The danger of parathion poisoning of honey bees depends principally on the method of application and time of use of the chemical. When applied in the St. George-Washington fields of southern Utah, for pea aphid control, to 150 acres of first growth alfalfa which was about 10 inches tall in spring of 1950, and to 250 acres of alfalfa at the same growth stage in 1951, before any blossoms were present in the fields, no bee poisoning occurred. Parathion spray was applied also to 150 acres of wheat and barley at the same time and in the same general area as on alfalfa in 1950. In this instance no honey bees were known to be killed.

Bee poisoning was very serious, however, in the Delta-Sutherland and nearby Millard County areas of Utah during 1950, when parathion was applied as dust and spray to alfalfa which was in blossom, for pea aphid and mite control. This insecticide was largely put on between July 20 and August 26. Even when applied in evening or early morning to blossoming alfalfa, death occurred to most of the field bees visiting parathion-treated fields on the two days following its use in alfalfa fields located near to bee yards. Less conspicuous bee death losses extended to the third day.

Utah State Agricultural College entomologists and apiculturists suggested this spring, that if parathion was to be used on alfalfa, it be applied **before** any bloom develops on the field, and at least 21 days before forage crop hay is to be cut. When parathion is used under those conditions, when no bloom attractive to bees is present in the fields, bee poisoning such as occurred in parts of the important Delta alfalfa seed tract of Utah during 1950 should be largely avoided.

Asked & Answered

Caging the Old Queen While a Young Queen is Reared

Question: I have about 25 colonies of bees and produce comb honey exclusively. Some time ago you wrote an article about a method you once used to produce comb honey up in Michigan. Perhaps you can tell me again how you did it, as I have lost the article.—Johnnie Bault, Iowa.

Answer: It is possible I referred in one of my talks to beginners to a method of swarm control which an old beekeeper in Michigan passed on to me. It is as follows: All queens were clipped. When a swarm issued, the queen was caught in front of the hive and put into a cage which was shoved into the entrance of the hive until the swarm of bees in the air returned to the hive. The brood chamber was then examined and all but one ripe queen cell destroyed. The queen in the cage was placed in the top super at the side of the follower board and kept there for perhaps a few weeks or until she could be used to advantage in the apiary. In due time a young laying queen appeared in the brood chamber below and thus the population of the hive was kept intact, a young queen was produced and the old queen kept in the upper super. If the old queen had outlived her usefulness, she was killed. If not, she was introduced to some colony needing a queen. I have had queens in cages for over a month. The bees will feed these queens through the wire screens.

Combating Wax Moth

Question: What chemicals should be used to protect supers of combs from the wax moth?—Francisco Scheitler E Hijo, Argentina.

Answer: The chemicals to be used to protect bee combs from the wax moth will depend on the number of combs involved. If you wish to protect only a few supers of combs, then PDB or paradichlorobenzine is the most economical. The supers of combs can be stacked in piles and one or two tablespoons of PDB placed on a piece of paper between each super. The stack can be made airtight by sealing the cracks with paper tape and fitting a tight cover on top. If the weather is warm, the PDB may need to be replaced every three or four weeks.

If there are a large number of supers of combs, they should be stored in a gas-tight room and fumigated with the fumes of burning sulphur, or with cyanide gas, or methyl bromide. The last two compounds are highly poisonous to man and should be used with care. Methyl bromide has no particular odor but will kill all stages of the wax moth, including the eggs. The fumigation room should be fitted with an exhaust fan or some means of ventilating the room before it is entered to remove the combs. The number of fumigations will depend on the temperature conditions and the possibilities of reinfestation.

I know of no chemical that is an efficient fumigant against the wax moth and which is not injurious to man. PDB would come the closest to your requirement for small scale operations. Sulphur fumes would come next for large operations. Since sulphur fumes do not kill the egg stage, the combs should be fumigated twice, a week or ten days apart, with additional fumigations to depend on temperature conditions.—J. E. Eckert, Apiculturist, University of California.

Preventing Deterioration of Honey Flavor

Question: We have the practice here of setting our honey in gallon glass jars on the roof to prevent granulation, instead of artificial heating. They are left there for about two months. However, we have noticed that in a year's time the taste of the honey deteriorates to a great extent. Should we attribute this deterioration in taste to the action of the sun's rays? If so, would you please inform us concerning the degree of temperature honey (mostly from Small Dutch) should be heated to prevent granulation for a period of a year and a half.—Fr. Laurian Rausch, Indiana.

Answer: It is usually agreed that light colored honey, as from white Dutch clover, if heated to a temperature of 160 degrees and then quickly cooled, if sealed while hot, will remain liquid the longest possible time. To guarantee that it would remain liquid a year or a year and a half, is problematical, for granulation sets in more quickly if there are microscopic grains of pollen in the honey. Sometimes too quick heatings are employed to settle the pollen and clarify the honey. Bubbles of air also hasten granulation. For these reasons, it is difficult to specify any certain length of time that granulation may be delayed. Your change of flavor is undoubtedly due to partial caramelization of the levulose in the honey. All hon-

ey is made up of a mixture of dextrose and levulose with a minute trace of sucrose. The levulose caramelizes at a comparatively low temperature. We once maintained some very light colored honey at a temperature of 130° for a week or so, taking a sample off every day. We had all colors of honey from the very lightest to a dark amber, at the end of the test period. Of course, as the color darkened, the flavor changed also, due to caramelization. Your honey in the sun easily reached a temperaure of 130°,—probably even higher than that. An artificial heat for a very short period would be a better procedure.

Trouble from Bee Stings

Question: For the past two years I have kept two hives and when I was stung the only reaction that manifested was a slight local swelling. About a month ago I received two stings on my hand and as usual I rubbed out the stings. The aftermath was a lovely case of what may be loosely described as "hives", accompanied by alternate fever and chill. My face swelled and I had difficulty with my vision due to the swelling in my face. There was a rash over all my body. I went to my physician and had to get an antidote. Since then I have been using g oves and in a fit of absent-mindedness I removed a glove and received a sting. This time it was a swelling of the hand and forearm. This was about ten days later. Can you explain this?—Edwin L. Patterson, Ontario.

Answer: We wish that we could give you a completely satisfying answer to your letter, but the fact is that not enough is known about the effect of bee stings. That some persons are little affected, even at the beginning, when they have seldom been stung, is well known. That others quickly acquire immunity to bee stings is also well known. It isn't common for one who has ordinarily been bothered very little with stings, to have an experience such as you had, but we have heard of it. Doctors know that persons allergic to this or that are not always affected. Why they are violently affected sometimes and not others, doctors do not understand, so we are told. If you have been subject to hay fever or to symptoms similar to it, bee stings could combine with causes of hay fever and perhaps bring about the hive condition of which you speak. I, myself, have had very few hay fever symptoms for several years but when I was sneezing considerably, bee stings would always aggravate the hay fever and cause me to itch and burn all over. Our guess is that the stings happen to aggravate some other allergy. Whether we are right or wrong, we suggest that you keep on protecting yourself as well as you can. Avoid handling bees when it is cold or windy, or when there is no honey coming in.

Treating Section Comb Honey for Moth

Question: What is the best way to keep the moths out of comb honey after it has been taken from the bees until it is on the market? What treatment should be used to get the moths and eggs?—J. U. Rea, Ohio.

Answer: It is the lesser bee moth that usually attacks comb honey. If you will treat your sections of comb honey twice with carbon disulphide, the second treatment twelve days after the first, then keep the sections free from adult moths, you should have no further trouble.

Killing Old Queens at the Beginning of the Main Honey Flow

Question: As I am away on business trips during the spring swarming season, could I control swarming by killing all queens in April each year thus forcing colonies to raise their own new young queens? This would weaken the colonies for a few weeks but they would be in good shape to make some surplus from the fall flow (if there was any). I am told this method would not prevent swarming since many new queens would be raised and some hives would swarm regardless. I would winter in double brood chamber hives.—T. H. Mettler, N. J.

Answer: It would seem inadvisable to do this so early in the season because a cool spell of weather in April or even in early May might interfere with normal mating of virgin queens. This frequently happens. There are some who practice killing off queens about the first or second week in June or at the beginning of the clover honey flow in the North. When this is done, there is of course a lapse in brood rearing for about three weeks during which time young queens are being reared. However, this lapse in brood rearing does not interfere greatly with the amount of surplus summer honey harvested provided the dequeening is not done until the main honey flow starts. There will naturally be a drop in the population of hives for a time following the dequeening. However, in your state where there is likely to be a fall honey flow, killing off the old queens during June should result in swarm control as well as requeening, not to mention reducing the amount of bees in the hives that would consume some of the surplus honey.

XUM

Live and Learn

By Propolis Pete

I have just finished up the 1951 season, and started on next year. All done with my extracting, and even the crop is pretty nearly all sold. It seems that everybody has their problems. Yours may be too much production and too little sales. Mine is just the opposite. I am working to correct my problem. Three colonies didn't do much, and had queens that skipped a lot of cells. So now they have new queens, and all the honey they make on the fall flow is theirs. I could increase my production by taking the fall crop, but would pay for it next year. Even at that, I'll probably have to feed some syrup towards the end of October.

After that bum start I told you about last time, I did pretty good. Soon after the Fourth of July, the flow continuing, the bees started to fill up the brood combs as fast as the new bees emerged, and between that and filling up the storage combs they had drawn and were still drawing, I ended up with the second best crop in history. Averaged 46 pounds per colony, including the six packages. Since two of the packages were duds, I call that darned good for this neck of the woods. Stop laughing, you fellows out there where a 46-pound average is considered a failure. Your bees have something to chew on besides foundation.

Ordinarily I won't take any honey out of the two bodies used for brood, but this year was different. The queen generally stays in the top brood body, leaving the bottom body nearly empty. Some brood and pollen, but mostly empty. The chief value of this bottom body has been that it provides clustering space for the day shift when they can't fly out. But this year, when they started to plug the brood combs with honey, the queen went below into that bottom body and filled it with brood. When I saw what was going on, I slipped an excluder between the two bodies, and when extracting time came had a nice super almost full of fine light honey, with nary a bit of brood to complicate matters. The bottom body was so crammed full of brood that every night up to ten pounds of bees clustered up the front of the hive. I didn't weigh them, that's just a guess. One unusual thing is all colonies did the same thing, with not a sign of swarming.

I don't like to use excluders, because if the honey isn't coming in fast, the bees won't go through them. But they are handy to have on hand for this sort of thing. If it weren't for them, I am sure that my crop would have been halved at least, for there would have been some brood in the lower part of the upper frames.

Speaking of extracting, I have often wondered why every beekeeper I know, and all of the books, tell you to cut the cappings from the bottom up. I know that I did it that way for years, because they told me to do it that way, but along around the fourth or fifth super my arm would begin to go dead on me. Uncapping upwards makes you lift the weight of the knife, and the drag of the hose doesn't help any, plus the resistance of the sheet of cappings. Also, the flap that you have cut off drops back to the sticky face of the uncapped honey, and sticks there.

Last year after my arm started to tire, I tried cutting down. It worked swell, and so this year I began and finished that way. I don't know why I never tried it before. Habit, I guess, and doing what teacher taught.

I use a spring to hold the hose out of my way when I am using a steam knife. Just a long weak spring taken from an old shade roller. Fasten it to the ceiling with a piece of string of the right length to give it the right tension, and in the right position. When you get done with a comb, you just let go and there it is right in front of your nose when the next comb comes up.

From now on down is the way I uncap, regardless of what the rest of the world does. It goes faster. The weight of the knife and hose help to push through the cappings (in spite of that spring) and the flap of wax that you have cut off, curls away from instead of slipping back onto that sticky surface below it.

Funny thing though, cutting down works best on fat combs. On sunken combs, where the capping is below the level of the top bar, cutting the old way works best. Maybe that is how up cutting got started

(Continued on page 635)

Second Glances

C.M. Isaacson

A simple, yet efficient bookkeeping system should be a part of every beekeeper's yearly operations. As Mr. Gouget points out (page 521), a single small ledger will suffice if divided into the three essentials of inventory, income, and expenses. With knowledge of one's investment the cost of producing a crop can be determined with at least fair accuracy from income and expenses. To really run a business rightly too, an amortization amount equal to the depreciation allowance plus any rise in costs should be set aside—however, few beekeepers have had anything to "set aside" these last years.

Beekeeping has its own "language" that seems to overcome the difficulties of different countries and tongues (page 524). It is truly a worldwide fraternity. It is not surprising either that the Swiss beekeeper liked beauty in his apiary, with scenery such as the snapshots show around the location.

Moving bees can be a painful operation, as Clyde Onyett found out (page 527). Anyone who has had experience moving short-tempered bees (I have!) will sympathize with his plight when the unloading commenced. He was fortunate in his friend, the inspector. Perhaps the old time "remedy" of tobacco smoke would have helped.

The principle of multiple signs to attract attention **in time** to a roadside stand should be a good one (page 529). It has been used with success for some years by a shaving cream manufacturer. Spaced properly they hold the eye better than even a large single sign.

Breeding from the best in honeybees can produce improvement in stock over a period of years but it has certain definite limitations. Traits that are influenced to a large degree by environment do not respond well to this method of improvement. Here is where controlled matings can be of especial value, both in actual results and in time saved (page 530).

That a good inspection program is essential to healthy beekeeping is plainly shown by Arkansas' experience before the inspection service was put on a really sound basis (page 534). And it also shows that the inspector can carry on a valuable educational service along with his other work. The "preaching" of better methods, equipment, and stock is heeded more quickly if it comes from an official source.

That Killion comb honey crop was a beautiful one—in all respects. And might I add that it also was quite a timely one; furnishing ample proof that Mr. Killion's new book contains solid fact. Such a crop is phenominal enough to be beyond envy. May they (father, mother, and son) have many more like it! (page 538).

"Tall oaks from little acorns grow," says one of the maxims quoted in the Honey Institute (page 540). It is an old adage but still a sound one. In this case it could well be said that the "acorns" are our contributions to the Institute—the "tall oaks" are the results it obtains from them.

Most of us learn the hard way, says Editor Deyell (page 543). That is about right—we all like to find out for ourselves but the experience is often quite costly. As to making divisions though—it is a regular part of our beekeeping practice up here to divide most of the strong colonies in late April or in May. Many years these divisions produce a crop equal to the parent stock.

A memorial to L. L. Langstroth is a fitting thing (page 545). His pioneering work is the foundation upon which our modern beekeeping is built. A memorial composed of growing things is especially fitting, for he, like all pioneers was never static in his ideas or work.

The California experiences in alfalfa seed production show definitely how valuable enough honey bees can be in pollination. What with little or no crop and deterioration of colonies as a result of heavy concentrations, however, the beekeeper has to have a positive assurance of adequate return before he can afford to move enough bees in to accomplish the best results (page 550).

At present high prices, it should hardly be necessary to remind beekeepers to save all possible wax (page 552). Scraping inner covers, frame tops, etc., will pay good wages —and leave a more easily worked hive.

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Editorials

More Enthusiasm Needed in Beekeeping During the past few years some beekeepers seem to have lost some of their former enthusiasm for beekeeping. This has doubtless been due in part at least to the poor crops harvested in some sections of the country. It has been said that nothing succeeds like success. It does take a good crop of honey to put enthusiasm into beekeepers, both beginners and veterans. Let us hope that areas where poor honey crops have been harvested recently may have a revival of good crops in the near future.

Some beekeepers have been so discouraged that they have sold out or have wanted to sell. Others, including commercial beekeepers, have hung on, believing that the future will bring better honey crops and higher prices. Such an attitude is commendable and represents the spirit of beekeeping generally.

Perhaps we need more beekeepers like the late Dr. C. C. Miller whose enthusiasm for beekeeping never lagged but continued until he passed on at the age of 89. Dr. Miller was considered the leading section comb honey producer of his time. At the age of 82 when the extracted honey era began, he changed over from section comb honey to extracted honey production. This simply shows that Dr. Miller did not get in a rut but followed the trend of the times.

It seems probable that the mass production, so-called, in commercial beekeeping which means that such beekeepers manipulate apiaries instead of hives of bees, may be responsible for the present apparent lack of enthusiasm. In the old days before outapiaries were common, when all of the bees were kept in the home location, it was possible for the owner to know the characteristics of each colony and the idiosyncrasies of certain queens in his apiary. During that era a great deal was learned about bee behavior because beekeepers had more time than at present to observe the behavior of bees.

Most of us would do well to recapture the enthusiasm necessary to make beekeeping more pleasurable and profitable.

Unite Weak Colonies to Save Stores and Bees It is obvious that much of the so-called winter losses of bees throughout the north are due either to colonies being too weak to go into winter quarters, or, not having a sufficient amount of stores for winter and early spring food. Such losses cannot be attributed to the severity of the winter weather but rather to the negligence of beekeepers.

It must be remembered that a colony that is lost early in the spring, due to starvation, has consumed a considerable amount of honey which is also lost. This, added to the loss of the bees, should be taken into consideration.

If all beekeepers would leave an abundance of stores with each colony, winter only populous colonies, and provide adequate protection, winter losses throughout the North would be lessened.

* * * * *

Do We Believe in Our Product? This may appear to be a trite question to ask but as we get over the country contacting beekeepers here and there, attending beekeepers' conventions and talking with the leaders of our industry, we sometimes wonder if beekeepers really do believe in honey.

Not long ago, the writer ate breakfast in a hotel where a National beekeepers' meeting was held, sharing a table with two top leaders of our industry. Neither one of them ordered honey, but the writer, as is his custom, ordered honey for cereal and coffee. One of the men said, "You are just trying to show off, ordering honey". The writer replied, "Show off, nothing. I have honey every morning for breakfast".

We made reference some little time ago, editorially, to the Dempsey family of eight in Massachusetts who banished the sugar bowl from their table and now use only honey. They consume six 60-lb. cans of honey each year, 360 pounds, approximately 1 pound a day. If all beekeepers' families throughout the U. S. (assuming there are about 600,000 —no one knows exactly how many there are) ate that much honey we would consume 216,000,000 pounds of honey each year, almost as much

as we produce. In 1950, we produced around 230,000,000 pounds.

If beekeepers and those affiliated with the industry would eat honey each day, as we think they should, they would be setting a good example for others to follow and there would be less honey to sell. This would increase the demand.

Let's actually believe in honey and use it on our tables every day. Honey is good to eat and good for us. We would be healthier if we ate more honey and not so much granulated sugar. If we do not believe in and use honey each day, how can we expect others to use it?

* * * * *

National Honey Week Perhaps beekeepers or those affiliated with the beekeeping industry are not making as much as they should of this National Honey Week which comes annually. It occurs during the fall months when people normally think of honey.

The American Honey Institute has been featuring National Honey Week for a number of years and has cooperated with beekeepers and those who sell honey by furnishing appropriate printed matter such as recipe folders, cook books, and honey signs of different kinds.

If all who are interested in the promotion and sale of honey would really concentrate on bringing honey to the attention of people of our country through advertising, distributing printed matter on honey, putting live bee displays in observation hives, offering to give talks on bees and honey at service clubs, and setting a good example by using an ample amount of honey in the home, the per capita consumption of honey in the U. S. would increase measurably.

Let's make this year's National Honey Week the best ever!

* * * * *

The Langstroth Centennial Those of us who operate hives of bees in movable frame hives, may fail to realize as we should the importance of L. L. Langstroth's discovery in 1851—the movable frame which later was made self-spacing. How simple it is to manipulate a hive of bees, removing each frame easily without killing any bees if we use reasonable care.

It is said on good authority that this idea of the movable frame came to Langstroth the night of October 30, 1851. Our Mr. E. R. Root, who was a boy when Mr. Langstroth visited in the home of the late A. I. Root, heard Langstroth tell about this idea of the movable frame coming to him in the middle of the night. He got up, went to his workshop, made a hanging movable frame and put it into a hive. Thus a new era in beekeeping was born. In fact, it revolutionized beekeeping throughout the world.

The first edition of Langstroth's book, "The Hive and the Honeybee", appeared in 1853, at the time he and his associates were promoting the sale of the new hive. This book and later editions of it has been a guide to scientific beekeeping.

L. L. Langstroth, in America, is considered one of the founders of the modern theory and practice in bee culture. He occupies a place with such keen observers of bee behavior as Swammerdam, of the Netherlands, Reaumur, of France, Francis Huber the blind Swiss, and Rev. John Dzierzon, the German speaking Pole. It is altogether fitting that beekeepers over the world pause to revere the memory of the "Father of American Beekeeping".

* * * * *

Queen Introduction We had an interesting experience this month introducing four queens. Two of them were introduced in regular mailing and introducing cages. These two queens were accepted. The other two queens were introduced a little later and somewhat differently. All of the escort bees were removed. The cages were fixed with queen excluding zinc covering the hole in the end of the cage opposite the candy compartment. Some candy was packed into the hole below the zinc to permit some of the bees from the colony to enter the cage after the candy was eaten out and mingle with the queen before she was eventually released at the opposite end of the cage. This method is based on the Chantry principle used for a number of years. The two queens introduced by this method were lost. Conditions may have been different at the time these two latter queens were introduced.

Weather conditions may have more to do with success or failure in queen introduction than we suspect. In the past when we introduced a considerable number of queens each day during the requeening season we have noted that on some days we had almost 100 per-

cent success and on other days, with apparently similar weather conditions, the percentage of failures was rather high, in fact, too high. We wonder if it is the condition of the atmosphere that makes this difference in queen acceptance.

Obviously, queens should be more readily accepted during a honey flow than during a dearth of nectar. However, it is necessary at times to introduce queens when little, if any, honey is coming in. During such conditions we have found that to make a colony queenless for six days, then destroy all queen cells started at this time, when the queen is introduced is a reasonably sure method of getting the queen accepted. Even this method does not prove 100 percent successful.

It seems that an occasional colony will not accept a queen regardless of the method of introduction used which means that no method is 100 percent successful—at least, that is our opinion. Some others may think differently.

Save Those Combs In the rush of getting honey extracted and colonies in good condition for winter, stored combs are apt to be neglected. It is natural to be concerned with first things first but, on the other hand, a common neglect that can cause the loss of much wax begins in the fall through the failure to care for those combs.

Some have argued that wax moths are after the pollen mostly. However, beeswax is a fatty acid and a food and it is astonishing how little is left of a comb after moths get into it and lay the eggs which so soon hatch out into the larvae, which account for the real destruction.

A comb riddled by wax moth larvae frequently yields so little wax when rendered that it hardly pays for the rendering. Whereas, from ten ordinary brood combs, set apart as no longer fit to use, two to three lbs. of beeswax may be obtained by careful rendering. The small amount of wax from a super of combs badly damaged by moth larvae might as well be forgotten for the destruction of the combs is well nigh complete.

Paradichlorobenzene, when used properly, is a safe and sure way of killing the wax moth. Full directions are always found on the package of the chemical. Here is a case where a stitch in time saves nine.

Honey Sign Stops Freight Train Beekeepers who are fortunate enough to live on well travelled highways have an opportunity to sell a considerable amount of honey.

The article entitled, "Roadside Honey Selling," page 585 this issue emphasizes the importance of employing proper methods of salesmanship. The honey sign and display may be called the silent salesman and if rightly used will result in sales.

Some years ago the writer had a honey stand beside a highway, on a lawn near a railroad track. The engineer of a freight train each day passed by the honey sign and some jars and pails of honey displayed on top of a white bee hive. One day he stopped his train long enough to purchase two 5-pound pails of honey.

There are four steps involved in the purchase of any commodity, viz., **attention, interest, desire,** and **action.** The engineer noticed the sign and the honey display which received his **attention.** He next became **interested** in the honey. A **desire** for the honey was then created and this eventually ripened into **action**,—he applied the air brakes, which stopped the train so that he could make the purchase.

And the same steps are taken by every tourist who stops at a stand to make a honey purchase, or the housewife who sees your honey properly displayed in a grocery store and makes a purchase.

It is up to those who offer honey for sale to make it as easy as possible for prospective customers to take the four steps leading to the purchase.

Mrs. McClintock, who operates the roadside honey stand in Wisconsin, may not realize what she is doing for our industry in developing consumer interest in honey. Those who drive along that road see the sign **HONEY.** Many may not stop but they are reminded of honey and may include it in food purchases for the future. Some may stop to buy a small jar—perhaps the first honey they ever bought. If they like the honey they will buy more from their grocer.

We need more attractive roadside honey stands. They can be made profitable for the owners and certainly they create consumer interest in our product.

From North, East, West, and South

SOUTHERN CALIFORNIA, Sept. 3

Weather: During the month of August most of Southern California has had very little rain. However, up in the mountains there were some heavy thunder storms and from one to three inches of rain fell. In some sections heavy rains fell the latter part of the month. The Palo Verde Valley and the Imperial Valley had heavy rains which did considerable damage to cotton and alfalfa crops. The Coachella Valley had several showers and growers of dates were very much concerned. Moisture is very bad for dates. San Diego County came in for its share and received some good soaking rains. Perhaps this is the beginning of a wet season. Most of August was very warm with more humidity than usual. However, the last week was cool and a fall atmosphere was in evidence.

Honey Crop: Generally speaking the honey crop in Southern California has been very satisfactory this season. The orange flow was good and the alfalfa has yielded a very satisfactory amount of honey. Those who moved to the cotton fields are well pleased. So altogether the Southern California beekeepers are feeling quite content about the crop in general.

Market: The honey market seems to be steady with buyers not anxious to stock up too heavily. Some orange honey sold as high as 11 cents per pound which naturally made the producers happy. Others received only 10 cents or a fraction more. Alfalfa honey is bringing anywhere from 9½ cents to 10½ cents per pound, according to the terms of payment to the producer.

Condition of Plants: Plants in areas where there was a good rainfall have already shown a response to the moisture. If these rains will only continue, honey plants should be in better condition for next year's crop. All of Southern California is hoping that the long dry spell is about at an end and the beekeepers are perhaps topping the list.

Miscellaneous: Pollination of plants doesn't seem to be of so much interest in these parts of the country as in many other places. Probably the fact that there isn't a great deal of legume seed raised has much to do with it. In the Imperial Valley, for instance, many beekeepers are still paying for alfalfa locations or at least giving a few cans of honey for the priviledge of placing their colonies on certain property.

Even though some producers are still extracting honey, the recent chilly mornings make us think that fall is here. So the thing to do is to begin to get everything in shape for the winter season. Of course, there isn't the work here that the Easterners have—but there is plenty to be done.—L.L. Andrews, Corona, Calif.

NORTHERN CALIFORNIA, Sept. 1

Weather: August was generally warm and favorable for pollination activity and honey production but some freak weather prevailed at times. A thunder and lightning storm during the third week of the month resulted in hail in sections, torrential rains in limited areas and an estimated 800 forest and brush fires set by lightning. Most of these fires were put out within the week by some 8,600 fire fighters but four or five major fires are still out of control, burning over valuable timber lands. Certain "Indian" signs, such as the flight of ducks and geese, lead some to forecast an early fall. Early rains will be welcome in the dry, parched hills but would do a vast amount of damage to late summer crops in the valleys.

Honey Production: Reports from beekeepers and the production of our experimental colonies indicate that this has been a better than average year for honey. Much of the honey is now in the can although considerable surplus is still on the hives. Even colonies located in seed areas in numbers which ordinarily would overstock the available pasturage, produced from 30 to 90 pounds of surplus. Ladino clover yielded better than usual in northern California but this may have

been due, in part, to the fact that about half of the colonies were moved to what appeared to be more promising areas for honey production. The quality of honey produced is generally good.

Honey Marketing: While much of the summer honey still remains in the hands of the producer, a majority of the early honey has been sold to handlers. Some of the larger buyers have withdrawn from the Government Support Program and are buying honey either at or under the support price. Some so-called "distress lots" of honey are said to have been sold by the producer at 20 cents or more under the support price. Many beekeepers have to finance their operations as they go and need to sell their honey as it is produced, or even before, in order to buy cans and to pay for labor. Such forced sales are frequently made below the market. This practice works a hardship on both buyers and producers for even though some of the sales are but a small portion of the total production, they do influence the prices other handlers can afford to pay to meet such competition.

The support price for honey sold in the export trade is not tied in with the subsidy program, and as a result, no exporter need pay more for honey than he can buy it for. He is assured of his handling charges plus 3-¾ cents a pound for making the contacts and sales. With unrestricted imports of honey, and with imports exceeding exports, it is ob vious that the whole honey program cannot produce the results for which it was intended.

The Honey Marketing Order was given a hearing in Los Angeles on August 15 and arguments were presented pro and con for its need. The great majority of evidence presented was in favor of this self-help program by means of which both the producer and the handler of honey produced and sold in California would contribute a like amount the first year to a fund which would be used for the research and sales promotion of honey. The program would be under the control of a Board of Directors made up of five producers and five handlers and under the immediate supervision of the Director of Agriculture. The Board would serve without salary. An industry assessment of 10 cents for each lot of 60 pounds of honey, half of which is to be paid by the handlers, although small, will still make a substantial amount to be devoted to the promotion of honey sales and research. The Order can be suspended at any time by the Board voting no assessment for the coming year if the program does not benefit the industry as it is intended to do. This program merits the careful consideration of every honey producer and handler when it is presented later this fall for his approval. Every producer and handler who sold honey in 1950 will be given an opportunity to vote on the Honey Marketing Order. Any California beekeeper who has not received a copy of this Order, should have his name placed on the list, as some may have been overlooked when the list was made up.

Pollination Problems: The total acreage and requirements for legume seed production in California would indicate that between 250,000 and 277,000 colonies of bees were used in pollination services during the present season. With a reduction of 25 percent predicted in the cotton acreage in 1952, it is possible that there will be an increased need for colonies for seed production during the coming season. An increased number of cotton growers are also taking an interest in the probable benefits to be derived from the concentration of colonies adjacent to cotton fields. If this interest develops in a positive way, the demand for colonies will be increased. Fortunately, a majority of the legume fields are fairly well set by the time cotton bloom is at its height. We still need more experimental evidence to show the true relationship of pollinating insects to cotton which, although largely self-fertile, may be benefitted by cross-fertilization. The California variety produces a large amount of extra floral nectar which at times tends to be detrimental to the fiber at picking time. The bees can perform a useful function by gathering this nectar.

The poisoning problems connected with seed production are greatly increased by the concentration of large numbers of colonies in rather limited areas. Parathion, and the other organic phosphates, and BHC are the most serious threats to the pollinators at the present time. There are other poisons, however, which are highly toxic to bees which will have to be closely watched in the

future. Beekeepers should report all losses directly to the county agricultural commissioner while evidences of injury are still available.

In Memorium: It is with deep regret that we learn of the passing of Dr. E. F. Phillips on August 21. Dr. Phillips was in failing health for some time but continued much of his public service work to the very last ounce of his endurance. His name will go down in the pages of history as one of the great benefactors of the industry.—J. E. Eckert, University of California, Davis.

MASSACHUSETTS, Aug. 30

The **weather** has been ideal for bees and honey plants, but too rainy for hay making. The humidity has made it none too pleasant at times working the bees. Rains came at frequent intervals all summer, so that the vegetation has remained green and luxuriant.

Honey Plants have been kept in such perfect condition that bees have gathered considerable nectar from the second cuttings of clover, and many fields are in much better condition at this time than they usually are in June. Bees have been found working plants that normally do not attract them. Here in Massachusetts we have hundreds of trees and plants that produce honey and pollen, and this year there has been a rapid succession of blooming plants from April on.

The Crop: Colonies that have been properly supered to keep the bees busy without swarming have from 100 to 150 pounds of honey. If the heavy frosts hold off until late in September, we still have prospects of filling another super. The quality of honey produced this year is much lighter in color than normal and of excellent body and flavor. Buckwheat that often produces a dark-colored honey this year was a reddish amber of fine quality. We generally separate the light from the dark while extracting for many customers favor the lighter honey. There are only a small number of frames of the darker honey, and the flavor is equal to or better than the light honey.

Condition of Bees: Queens have been laying heavily all summer, and colony strength is above normal. Hives are full of bees from top to bottom board, and in the tall colonies this means 25 or more pounds of bees. If the honey flow should shut off suddenly this would make it necessary for them to consume stores that are now counted as surplus. We cannot see how this is possible with plants in such fine condition, but we have no control over the weather.

Swarming in August has been heavy. We normally have supersedure swarms at this time which contain only two or three pounds of bees. This year bees that were the least bit crowded for super and brood room have cast swarms as big as a bushel basket. Such large swarms are valuable either to reunite with the parent colony or to make up new units. The loss of such large numbers of bees from a colony greatly reduce the honey yield unless re-united, especially if the honey flow continues for another few weeks. If, however, the late flows are of inferior quality honey and colony increase is desired, these late swarms will produce enough honey and brood to winter them, or if they do fail to produce sufficient honey, they may be united with other colonies needing extra bees, or they may be given supers of honey late in the fall or sugar syrup to make up stores.

Miscellaneous: American foulbrood still remains one of the big problems to the beekeeper and must be guarded against. The disease is easily spread by the removal of supers from diseased colonies and the honey extracted along with the combs from clean colonies. To guard against this, each and every colony should be examined in the brood nest at the time of honey removal. A slightly infected colony may produce as much or more honey as a clean colony, so all colonies must be examined. This takes extra time and labor during the busy season, but may be the most profitable time that a beekeeper spends if he is in a section where AFB is common. The use of disease resistant queens and sulfa still remain the biggest aids a beekeeper has to prevent infection from spreading and to keep the brood chambers clean.

It is a good rule to examine each colony for disease before putting on clean supers. Supers are valuable and once they have been placed on a colony infected with AFB are not

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safe to use again on clean colonies. We here have had more experience with AFB than we wish to have. We are continually working out new methods of controlling it.

So now we are able to keep the disease under control. This has cost us considerable cash money, and hard work which is not pleasant to think about. We hope other beekeepers will take the same precautions to keep their bees clean.

We have purchased a wooded tract of land adjoining our main farm which we hope to clear for pastures and fields of clover for the herd of registered Guernseys. Heifers have been arriving rapidly, and growing so fast that our original barn will not house them this winter. My son purchased a cement block machine and has become so proficient that it appears that we will be able to build a new stable. We have the pine and oak and a new chain saw. We do lack time for the bees have kept us moving. A beekeeper must be even more busy than the bees to keep ahead of them.—R. E. Newell, Franklin, Mass., P. O. Medway, Mass.

OKLAHOMA, September 1

Weather: Oklahoma has all kinds of weather. In 1950 a sleet storm struck Duncan on January 3, with a cold wave that sent thermometers to 10 above zero. In 1949, there was sleet and freezing rain on Jan. 9. In 1948, there was three inches of snow on the ground when people here awoke on New Year's day. And in 1947, some 5½ inches of snow fell on the night of January 1. And a 74-degrees reading on January 18, 1951, was the warmest day on record in 61 years. The bees had a cleansing flight. It was a good day to slip off and go fishing. High temperatures prevailed over Oklahoma during July and August, dry with only widely scattered showers. Oklahoma City reports 105 degrees, tying the all-time heat record for September 1 equalling the same reading set in 1939 and 1947.

Bees: A total of 56,000 colonies of bees were on hand July 1 in Oklahoma according to the Federal State Crop Reporting Service. The number of colonies this year is four percent less than the number on hand last year, and the smallest reported for the State since 1945. There was a relatively high loss of colonies during the winter and spring of 1950-'51. However, replacements were also high. Nectar plants were slow because of the dry, cool spring. Since May, however, nectar plant conditions have been fair, nectar plant condition for the State about July 1 were reported at approximately 85 percent of normal. The condition of colonies for the same period was reported at 89 percent of normal.

Honey: Reports indicate a rather variable honey flow ranging from good to light. In the extreme western portion weather was dry during this period and clover blooms dried up. Web worms damaged alfalfa fields that were intended for seed, and they were cut for hay. Bees in this area have secured only enough honey for winter stores. Alfalfa has yielded well in the southwestern part of the State. In the northeastern portion much clover was plowed under, and hail also damaged some fields. And in this area flows have been light. During the past 19 days the flow improved; however, it began too late to secure a large crop of honey. The honey crop will be very short. Very dry and extremely hot weather has all but ended the honey flow. Sun flowers are in bloom, but bees are slow to work them. Brood rearing has let up considerably and colonies are not in the best of condition. Sumac is plentiful in this area, but it is not a heavy yielder, and with this dry weather may not do anything at all. Cotton was yielding but the hot dry weather may hurt the flow.

Pollination: Things are buzzing for the Oklahoma Beekeepers' Association. The annual association meeting is being planned at Oklahoma A&M College for October 3 and 4. President Glenn Gibson, Minco, says around 200 beekeepers are expected to be on hand. They'll hear reports on two years of "combing" study on using bees to increase alfalfa, vetch, and sweet clover seed production. Entomologist G. A. Bieberdorf, A&M, is directing the research as a joint study of the Oklahoma Agricultural Experiment Station, State Beekeeper's Association, and the Samuel Roberts Noble Foundation, Ardmore. Several out-of-state speakers and a guest

delegation from the Texas Beekeepers' Association are slated to attend. Turning bees loose in clover is a good way for farmers to increase their clover seed returns, G. A. Bieberdorf, Oklahoma A&M college entomologist advises. Oklahoma sweet clover varieties prosper under increased pollination. Larger seed yields and higher crop returns are two benefits of bee activity.—V. K. McMasters, Duncan, Okla.

KANSAS, Sept. 8

Weather: Rain has been one of the most predominant weather factors this summer in Kansas. The normal rainfall for the year at Manhattan, Kansas, is 31 inches. To date, the record at this locality is 59.16 inches. Countrywide newspaper accounts have given information about the long-to-be-remembered July 10 to 16 flood in Kansas and Missouri. The floods of the various rivers of eastern Kansas have been extremely severe this year with tremendous hydraulic power exerted. Destructive force was immense. Manhattan had two lesser floods in June and one is receding at present, as is the one on the Marais des Cygnes. The damage to crops as well as other property in Kansas has been exceedingly high. Accompanying this cloudy rainy condition has been a summer of lower temperatures, termed cool. The floods occurring have laid down deep layers of sand over the land on which were growing crops. It will be two or three years before some of this land is recovered for agricultural purposes.

Condition of Colonies: Some swarming in strong colonies was prevalent during the latter part of May and first part of June. In all probability, there was considerable loss of colonies which were located in the flood plains of the rivers. Where sufficient room was present for brood rearing during August, colonies have maintained good strength in connection with the nectar flows from such plants as alfalfa, Spanish needle, and smartweed in their respective areas of the state. During this period, colonies which were not given super room have been crowded in brood rearing.

Plants: Yellow sweet clover is now grown extensively in southeastern and south central Kansas. This is an earlier bloom than white sweet clover by about two weeks. Alfalfa in the valleys in central and eastern Kansas were destroyed and have not been replanted; floods are prevailing at the present time. Many alfalfa fields in this region will not be present for two or three years hence, due to the sand deposit. Alfalfa on high land in central Kansas has shown good growth and secreted nectar during August. Smartweed is in abundance this year because of the favorable moisture conditions.

Honey Crop: Again, as in 1950, the honey crop is principally from yellow sweet clover in the eastern half of Kansas. If the beekeepers missed this opportunity, their crop is somewhat smaller than it should have been. In western Kansas, alfalfa and white sweet clover honey crops were good. At the present time in many sections of eastern Kansas, a smartweed honey crop is being produced. A Spanish needle crop in the southeastern corner counties is also being produced.

Market: Several packers in the lower Missouri Valley area as yet are not in condition to pack honey following the severe floods of the Kansas and Missouri Rivers. Locally, honey is moving at a fair rate and a good standard price is being received. The demand is approximately the same as that in 1950.

Miscellaneous: On May 11, 1951, in Topeka, at a meeting of the Kansas State Beekeepers' Association, a code for honey house sanitation was formulated and accepted. Copies of this code may be obtained from the Secretary of the Association or from the Department of Entomology, Kansas State College.

The existing suggestions for pollination contracts are not proving to be too satisfactory. There probably will be changes made for better protection for the beekeeper under unfavorable seed production conditions in alfalfa. Sudden decision on the part of the farmer to cut a hay crop because of poor seed production possibilities does not compensate the beekeeper. The beekeeper has had expenses moving apiaries; and with the overstocking of an area with colonies, loses an opportunity for honey crop production and resulting compensation.—R. L. Parker, Dept. of Entomology, Manhattan, Kansas.

XUM

KENTUCKY, Sept. 5

Weather: The weather during June and July was unusually favorable for honey production in central Kentucky. Rain far above normal stimulated the growth of the clovers, and cool nights followed by sunny days brought about an unusual honey flow. Late July and August was too hot and dry, however, and honey production tapered off sharply.

Honey Plants: White or Dutch clover had a long and luxuriant growth as did both yellow and white sweet clover. The yellow species blooms about two weeks earlier than the white. Both grow abundantly along roadsides, paths, old fields and odd lots in this limestone region. Basswood, although not very common, had a good season, as did persimmon, tulip poplar, and black locust all of which are common in many parts of Kentucky, and attract hordes of bees. Mountain mint and the bonesets are also very valuable late summer honey plants. In southern Kentucky in the Pennyroyal section the narrow-leaved vervain covers many acres of pastureland with a mass of blue bloom. Some honey was reported from lima beans.

The Crop: The bees built up very rapidly. The main honey flow was during the last week in May and the month of June. In central Kentucky many beekeepers said it was the best and fastest honey flow they had seen in many years. Elmo Wilson had one hive that stored 264 pounds in 20 days, filling eight shallow supers and one deep super during that time. This hive is being shown at the state fair. Fred Miller had seven hives that stored from 230 to 250 pounds each during the month of June. The flow was so fast that most beekeepers had trouble keeping enough storage space available. Many pounds were undoubtedly lost because of the beekeepers' failure to keep up with the needs of their bees.

Market: Sales were good early in the summer, but have tapered off in August according to the Lose Brothers, leading wholesaler. Their trucks deliver to jobbers and retail stores over most of the state and also southern Indiana.

Miscellaneous: An educational trailer which is sponsored jointly by the Kentucky Beekeepers' Association and the Kentucky Division of Agriculture is touring the county fairs. It will visit 17 in all with state bee inspector Fred O. Miller in charge. Members of the Beekeepers' Association have donated the honey, and the money from its sale will be used for educational purposes. Members of 4-H Clubs and Future Farmers of America in particular are being encouraged to become beekeepers.

Kentucky beekeepers held a field meet at the farm home of Dr. Stanley Bandeen in August in Shelby County near Simpsonville. Among the speakers were Governor Weatherby who promised his support, Ben S. Adams, Commissioner of Agriculture, and Jefferson County Agent, Shirley Anderson, who urged the use of more bees in orchards.

Dr. Everle of Purdue University described experiments on the use of bees to pollinate red clover which had increased the crop from 2½ to 3 times normal in 14 out of 15 cases. He suggested a rental of $7.00 per hive or 25 percent of the increase.

The Fegenbush orchards in Jefferson County used refrigerated pollen to pollinate their pure stand of Red Delicious apples this spring. They placed the pollen so the bees had to crawl over it as they left the hive. They spent $425.00 on the experiment which proved highly successful.—Harvey B. Lovell, University of Louisville, Louisville, Ky.

TEXAS, August 31

Weather: The weather over Texas continues hot and dry with many points reporting the highest temperatures ever recorded. Drought which has existed for many months is becoming increasingly severe and now covers more than three-fourths of the State. With a steady lowering of the water table, many wells and water courses are turning dry and cities experiencing water shortage are placing restrictions on its use. Conditions are reminiscent of the dry years — 1917, 1925, and the dust bowl days of the early '30s. Long range weather forecasts promise no relief but only continued hot and dry weather for the coming month.

Bees, Plants, and Honey Crop: Our bee plants follow the same pat-

tern as the soil moisture supply. There is no bloom at this time consequently the dearth of nectar and pollen continues and many colonies are broodless. Some native trees and shrubs, many of which are important bee plants, are dying as a result of drought. If the present condition is further prolonged, there will be many weak colonies with only old bees going into winter. While conditions at this time are discouraging, the nature of many of our native annual plants is such that they will come back quickly and put new life into the colonies whenever we get that all important rainfall which we need so badly. Under present circumstances there is no better assurance of colony survival than two-story brood chambers well filled with stores to maintain the colonies. In river valleys, conditions generally remain more favorable with the nectar and pollen supply holding up well and continued brood-rearing. As to the current year's honey crop, vetch produced honey of the highest quality, however, surplus from this source was obtained only in a few northeast counties. In south Texas, the main honey crop came from mesquite. In spite of a relatively large acreage grown to cotton throughout the State, the nectar yield was erratic and cut short by dry weather, with the best yield perhaps not exceeding 40 pounds. There are but few reports on cotton from the High Plains and the irrigated districts; however, this section could add considerably to the year's honey crop. The acreage of sweet clover, particularly Hubam, showed considerable reduction. The current year's honey crop appears to be the shortest during the past five years.

Market: Although retail grocers are well stocked with honey, movement at this time is particularly sluggish. Relatively little honey has moved from producers to packers so far. In view of a relatively short crop, producers apparently are expecting an increase in price. Among retail grocers there is a price range of as much as 4 cents per pound on the same brand and pack of honey. Beeswax is bringing 50 cents for dark and 52 cents for light wax.

Miscellaneous: According to the U. S. D. A., Honey Report for July 1, 1951, 304,000 colonies of bees are recorded for Texas which is 3 per cent below the number a year ago. Spring increase apparently did not make up for colony losses. For some years colony numbers over the State have shown a steady increase. From present condition of bees and plants further reduction in colony numbers may be expected. In spite of colony losses capital losses can be minimized when combs and hive equipment are saved. Older beekeepers will remember that prosperous years follow lean years and how easily colony numbers can be built up in a good season with an adequate supply of combs and hive equipment.—A. H. Alex, College Station, Texas.

NEW YORK, September 8

Weather: We have had, during the month of August, some very hot days. The bees have had opportunities to store quite a crop of the dark honey where fields of buckwheat have been in reach of them. Unless more warm and pleasant weather comes soon, the season is over in central New York.

Crop: During the season just past, most of the colonies in the state have stored a good crop of clover honey, which is of better quality and lighter color than in 1950. The report of the crop averages from 60 to 100 lbs. per colony, not counting the flow from dark, or buckwheat, which has not been established as yet. Beeswax seems firm at 52 to 55 cents on a delivered basis with a slight chance that it may go higher, but that is hard to figure. The prices are bound to crack sometime as anything that goes up has to come down.

Market: The demand for honey averages better than last year with some demand for light amber for commercial uses. The prices are right around the same levels or slightly cheaper in some cases.

Miscellaneous: Some have mentioned to me now and then about selling bees and equipment and going out of business. Bees and equipment will now perhaps bring only one third of the original cost, but I believe that it is worth while to hold on to, for the U. S. is mainly on a war basis and once more sugar may be hard to get. Thus, if honey does come into its own again, one season would more than pay for the origi-

nal investment, and then they could be sold for whatever the market will bring.

To keep your business on an even basis with the rest of the business firms, select, and have some attractive printed letterheads that show you are in the business of producing and selling honey. It helps. Mail comes in here from many beekeepers and others who have some very attractive set-ups. One I noticed especially was very attractive in color and printing. It was suitable and neat and to look at it one would naturally think, "Here is a man in the honey business." This does pay.

Keep informed as to what goes on. Take papers concerning bees and read them. Praise the worthy articles. Find fault with the things with which you do not agree. Demand great things from your business and in time you will reap in abundance if you do not give up, for no beekeeper is really interested in the future of the honey industry unless he can see twice as much with his eyes closed as he can when they are opened.—Roscoe F. Wixson, Dundee, New York.

VERMONT, Sept. 11

Weather: After our dry spring and discouraging outlook for a honey crop, weather has turned rainy and since the end of June, showers have kept the soil moist all summer, and showers seem to keep on more or less regular schedule,—quite a relief after the three dry years gone by.

Honey Crop: This is the best news for this report—we have one, and it is the first crop of honey in four years. That is also quite a relief. While the crop is not large, about an 80 lb. average, it is of the most excellent quality, heavy bodied, water white, and mild delicious flavor, something any beekeeper would be proud to sell. This is also in contrast to the past four years, when our average was about 20 lbs. per colony and we were rather ashamed to present it to the public. This year's crop should do a lot to redeem the faith people have had in Champlain Valley honey, but until now, haven't had a chance to maintain.

Honey Plants: This spring when looking over pastures and meadows we failed to find any clover to encourage us for a crop, but where the clover all came from this summer is hard to imagine. Guess it "just growed". Our main honey plants this year were alsike clover and purple vetch. Purple vetch here is getting to be quite abundant, grows entirely voluntarily, and I believe is a more important honey plant to us than we realize. It is an excellent hay crop and farmers are glad to see it come into the meadows. White pasture clover is still out of the picture with us, but with this summer's rains it is starting to come back and perhaps next summer, after an absence of many years, it may yield honey again.

Alfalfa helped some with honey, but since much of it is cut before it blooms very long, it was not a major source. After going on a decline the past several years, alfalfa is also coming back again. Our new legume, bird's-foot trefoil or as one French-Canadian farmer calls it, "Birds-full-of-trees clover", is also on the increase. Where it is abundant enough, it has yielded honey well. Our first white honey this past summer came from a field of early blooming trefoil about June 10th. Before other yards were working, this yard near the trefoil came piling in with a heavy flow of water-white nectar. Since the regular type of trefoil doesn't bloom until about the 25th or 30th of June, this is the first we knew that an early blooming variety existed.

Bees: Condition of bees is good, with a trickle of honey coming in since the main flow stopped in July. It is at this time of the year the big difference can be seen between the different strains of bees. Most of the dark strains are well stocked with honey in the food chambers and starting to ease up on brood rearing. Other strains, especially the yellow variety are still loaded with brood, in their food chambers. Consequently, when we take off the supers, they have almost nothing left for honey but a bushel of bees. I know the good bee books preach strong hives of young bees for wintering, but such a thing can go too far. What good is wintering a bushel of bees when they will starve to death before spring? Yes, I know you can run around with feed cans to keep them alive, but there's really no point to it, especially when

(See next page)

The Drone

By C. H. Pease, Canaan, Conn.

I'm sorry for the poor old drone—he has no friends among honey producers. However, most beekeepers tolerate thousands of him in their hives, crowding the workers with their big fat bodies until the congestion drives the colony to swarming; and what is worse, if the workers didn't supply him with their hard-earned honey he would starve to death. He "lives the life of Riley," feasting on the honey gathered by his sisters, without bringing in a mouthful of it himself. It is literally true that, in a bee hive, "everybody works but father".

I am convinced that most beekeepers have no idea of the amount of honey they lose by boarding an army of "big lazy bums" in their hives. The book "How to Succeed with Bees" by Atkins and Hawkins told us that "Every drone is a real expense to the beekeeper". I can say "Amen" to that statement because, since I began waging war against drones and my colonies are almost entirely divested of them by traps and killing their cells, my honey crops have increased materially over former years until my per-colony average for the whole apiary is nearly double every year and some years more than double that of other beekeepers in my section, and also according to the government reports for our state of Connecticut or for all New England.

One of the best honey seasons for this state was 1948, when the government reported the per colony average as 37 pounds (usually it is 35 or less). It was also one of the best seasons for me, as my average was 86 pounds, and my best colony gave me 142 pounds, every ounce of which was lugged through both traps and excluders (which many beekeepers claim are great hindrances to bees)—but would I have gotten that fine crop if a big army of drones had been eating it all summer? I doubt it. One of my traps took 5259 drones, by actual count, out of one hive in a neighbor's apiary from May 2 to August 31, last summer—I suspect his combs were well stocked with drone cells.

Evidently drones have a "he-man's" appetite, and I agree with Allen Latham when he said in his book: "They appear to be always hungry and are forever asking workers for a bit of honey . . . they rush from the hive in warm hours soon to return hungry and rushing out again after getting another lunch; one begins to believe that honey to the drone is the same as gasoline to the automobile".

The book "The Hive and the Honey Bee", page 104, has this to say about drones: "One thousand good-for-nothing drones take up as much breeding space as fifteen hundred workers, and require as much food, with negative results."

A leaflet sent out by The A. I. Root Company, entitled "The City of the Bees", said this about the drone: "He is a happy loafer, never working, always fed by others, a regular 'man about town' until fall comes—and then nobody cares for father".

The method almost universally advocated for keeping down the drone population is to discard combs containing drone cells and replace them with new combs having all worker cells. Theoretically this is good practice but it is only partially successful because bees insist on raising drones and if they have no drone cells they will tear down some of the worker cells and build drone cells, especially in the lower corners; also, if a comb gets damaged in any way it is almost sure to be replaced with drone cells.

Strange as it may seem, the drone is father of all the thousands of workers and the queen, but he has no father, and never did have one, as he comes from an infertile egg. His only paternal relative is the grandfather on his mother's side.

Yes, I'm sorry for the poor old drone, but not sorry enough to want to board him in my hives.

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they don't make as much surplus as bees with more winter-preparedness instinct. In this part of the country a hive with an average amount of bees and combs full of honey (not sugar syrup), will make more surplus with lots less labor.—Charles Mraz, Middlebury, Vermont.

DR. E. F. PHILLIPS

(Continued from page 593)

tired in order to take life a little easier. The life work of such a man should not drop at this point. We can well afford to take a retrospect and I, a contemporary, have assumed the job of telling of his work.

"Dr. Phillips, like Robinson Crusoe, needed a man Friday, and to make a long story short, he selected the late George S. Demuth. Of Demuth he said that he was the best practical beekeeper in America, and one with a scientific approach. Not a better man could have been found. The two worked together for several years with the result that a new epoch in bee culture was born. The work of these two men was outstanding. Perhaps there is not a parallel in all the annals of bee culture which covers a wider scope in scientific and practical beekeeping, unless it is the work of Francis Huber, the Swiss naturalist. Later on, George Demuth became editor of Gleanings in Bee Culture and continued as such until the time of his death in 1934.

"While I was at Oberlin College I occasionally wrote articles for Gleanings. Later, when my father's health began to fail, he asked me to take over the editorial work. I found many problems unsolved and was looking for some young man who could become familiar with some of these problems and who had back of him some scientific training.

"In 1903 I received a letter from Dr. E. G. Conklin, Professor of Zoology at the University of Pennsylvania, which read as follows:

" 'Permit me to recommend to your favor Mr. E. F. Phillips, one of my graduate students, and the holder of our Fellowship in Biology for the coming year. Mr. Phillips has undertaken at my suggestion, to go over the whole subject of parthenogenesis in the honey bee in the light of new theories and observations, eliminating, if possible, certain sources of error which are found in the works of older students of this subject and considering many features of the problem from new points of view. Mr. Phillips is a clear-headed, well-trained man, and I consider it highly probable that his work will yield valuable results. He proposes to offer this work, if it should result favorably, as his Ph. D. thesis, in which case it will be published in full.'

"Here was just the man, and after some correspondence Mr. Phillips came to Medina, and history has proved that he, then only 25, with George Demuth, was the man who played no small part in a new epoch in bee culture.

"During the summer of 1903 when Dr. Phillips had obtained permission to spend some months at Medina, his interest was chiefly in parthenogenetic development of drone bees, the fate of eggs laid by drone-laying queens and, in continuing his work begun in 1902, on the compound eye of the honey bee. He was also interested in methods of queen rearing, having spent the previous summer with E. L. Pratt, known as 'Swarthmore'.

"Dr. Phillips obtained the degree of Doctor of Philosophy from the University of Pennsylvania in June, 1904, and remained there the next year as Research Fellow. He was elected to the Research Fellowship for the second year, starting in September, 1905, but he resigned this to enter the service in the Bureau of Entomology, receiving a temporary appointment when Frank Benton left for his round-the-world trip, hunting for races of bees. He was designated 'Acting in Charge, Apicultural Investigation', which post he occupied until 1907, at which time he was put in charge of that work.

"The Bee Culture Laboratory at Washington was expanded by the employment of G. F. White, Arthur H. McCray, Burton N. Gates, R. E. Snodgrass, A. P. Sturtevant, and later by a number of others. Intensive work on causes of bee diseases was begun in 1906, and throughout the progress of this, Dr. Phillips worked on methods of control. He was the first to make a distinction between AFB and EFB, the former a virulent disease, the latter a milder disease. He devised the present plans of control of European foulbrood, and because of these the disease is now inconsequential.

"George S. Demuth, already referred to, entered the Federal Service in 1911 and remained until 1922. Shortly after his appointment, plans were instituted for the two to work together on the wintering problem. After many attempts to devise a suitable program of work in an effort to solve the practical wintering problem, it was concluded that such work was premature and that the proper way to attack the problem was to learn how bees behave in the broodless period. This was done in part by studying the temperatures of the winter cluster in relation to temperatures in the hive and outside the cluster, and outside the hive. A total of over a half-million temperature readings were made the first winter. It was soon evi-

dent that there is an intimate inverse relationship between cluster temperatures and the temperature of the air just outside the cluster. From that, after innumerable tests it was found that it was a simple matter to retain the winter cluster at a fairly low temperature merely by insulating the hive properly. Since high cluster temperatures wear out the bees quickly and lead to the development of **Nosema apis,** Dr. Phillips concluded that 'the solution of the practical problem of wintering rests largely on the use of suitable insulation—top, bottom, and sides'. Tests were made of all manner of insulations, and it was found that these were immaterial, just so all parts of the hive are protected.

"At no time did Dr. Phillips or Demuth advocate any special material for insulation or any particular way of applying it, but since, in one of their publications they pictured a quadruple case, many erroneously jumped to the conclusion that they favored it above all others, although in that same publication they said they did not.

"During the First World War the Bee Culture Laboratory was entirely changed over to war activities. Extension work in beekeeping was then started. Other offices were induced to take on plans for beekeeping, such as the semi-monthly market news service, work in home economics for the use of honey, special reports on the status of beekeeping annually, color grading of honey, etc.

"In 1924 Dr. Phillips resigned from Federal Service and accepted a professorship at Cornell University. He retired from this post on June 30, 1946. Graduate students working there in this period have since occupied positions in several states, several provinces of Canada, India, China, Ecuador, the Soviet Union, Czechoslovakia, the Union of South Africa, and Mexico.

"In 1924 Dr. Phillips began work in building up a beekeeping library at Cornell University for use in the graduate work and otherwise. This grew steadily, and by 1946 it was second to none. Since 1946 a major share of the time has been spent in accumulating still more material for the library. In June, 1946, at the time of retirement, the trustees of Cornell University named the beekeeping library the 'Everett Franklin Phillips Beekeeping Library', and at that time arrangements were completed to provide a permanent endowment fund of $10,000, the income of which can be used only for the purchase of books and other published material for the library. The library now surpasses all others in size, this being especially true since the great Drory Beekeeping Library in Berlin was destroyed during the war. In obtaining additional material for this library it has been possible also to assist libraries in other institutions by exchanging duplicate material, so that all the beekeeping libraries are now more extensive than at any previous time. Exchanges have been made with associations and institutions in the Soviet Union, Germany, Czechoslovakia, Hungary, Italy, France, Switzerland, the British Isles, India, China, Australia, and elsewhere.

"Dr. Phillips received an honorary degree of Doctor of Science from Allegheny College in 1929. He has also medals of five foreign associations of beekeepers, including that of the Apis Club, of which he was President in 1924.

"Dr. Phillips' book 'Beekeeping' was published by the Macmillan Company in 1915. He revised it in 1928. He is the author of numerous bulletins, scientific articles in various journals, and technical articles in beekeeping journals, to a total of roughly 700 titles."

This Makes Labels Stick

By C. Dillon Sell, Rockford, Ohio

Mucilage is generally prepared from vegetable substances. An excellent article, none better, may be made from gum arabic, four ounces; honey, one and one-half ounces, and water, one pint.—(Copied from the Standard Encyclopedia.)

I have now tested this material and find that it works, at least on glass jars.

It is not necessary to put the mucilage all over the label, but just on a strip about ¾ of an inch wide on two sides of the label. It takes hold a little quicker if the labels are put on while the jars are warm.

A Talk to Beginners

M. J. Deyell

Killing off Bees in the North in the Fall

Just recently a beekeeper from central Saskatchewan mentioned the prevailing method of solving the winter problem in that section of the province, namely, gassing the bees in the fall, taking proper care of the hives in the winter, then starting with package bees and queens in the spring. Apparently, this beekeeper did not realize that a number of beekeepers in the United States, especially those living in the northern tier of states, practice this method.

There appear to be some advantages for beekeepers in the far North who follow this method, namely; they do not have to worry about wintering their bees, and they save a considerable amount of honey to be sold that would otherwise be consumed by the bees during the winter months. It has been found that bees in the North consume considerably more honey during the winter than bees farther south. This is not surprising because the winters are longer in the North than they are farther south. The labor and material necessary for packing hives of bees for winter is not used. This means a considerable saving. Then, too, the labor of unpacking the bees in the spring is saved. Packed hives are not exposed to so much weather as are unpacked and should last longer. The package installed in the spring has a young queen and young bees. This queen should be longer lived than a wintered-over queen, unless such a queen had been introduced late the previous season.

However, on the other side of the ledger, there is the labor of killing the bees in the fall, also the expense of Cyanogas to kill the bees, the removal of dead bees from the hives, the proper storage of hives during the winter, the placing of the hives on the summer stands in the spring, and the installation of packages at the proper time, not to mention the cost of purchasing packages which includes high transportation charges, also the worry connected with having the bees reach their destination at the proper time.

Beekeepers in the North will have to determine which method of meeting the winter problem is preferable for their respective localities.

M. J. Deyell

Using Queen Excluders

In a previous talk, I mentioned the feasibility of using queen excluders in the fall to prevent queens from entering supers to lay eggs in combs, also to encourage bees to store enough fall honey in the double brood chamber for winter and early spring stores.

I realize there are some who do not use excluders and say they are honey excluders. Personally, I like to know where the queen is and I detest finding combs of brood in supers when removing surplus honey. In the vicinity of Medina, when the cool fall nights come, bees are prone to store honey in the double brood chamber rather than carry it up into the supers unless there is a spell of warm weather and a good honey flow.

We like to have our double brood chambers well filled with honey. When each colony has a good queen and there is ample comb space, which means supers, above the queen excluder, during a good fall flow the bees will carry honey into the supers in order to make room for the queen to lay in the double brood chamber.

As a rule, during a fall flow, the queen will be pushed down out of the food chamber, sometimes called the upper brood chamber, into the lower chamber, and this is what we like to have happen. The upper chamber is then filled with honey and there is also a considerable amount of honey in the lower chamber.

In this locality, the fall flow usually lasts until the middle of October. Brood rearing practically ceases by the end of the second week in October and comparatively little honey is used by the bees from then until brood rearing starts again early in the spring, usually some time in February.

Let the Brood Chamber Alone

It seems essential that the combs in the double brood chamber be left as they are, after the bees have arranged the honey and pollen during the late summer and fall months. It would be a mistake to rearrange the combs. This might result in the loss of the colony. If left strictly alone during the latter part of the season, the bees appear to do a good job in fixing affairs to suit their own requirements without the intervention of their owners, unless it is necessary to feed syrup or give combs of honey.

We like to have at least 50 or 60 lbs. of honey and the equivalent of four or five combs of pollen in each double brood chamber hive, to go into winter quarters. If the queens are reasonably young and prolific, such colonies will have an abundance of young vigorous bees and if given the proper protection will withstand the rigors of a cold winter.

Aster Honey

During the fall of 1935, we had a heavy aster honey flow about the middle of October. Bees actually drew out full sheets of foundation and built burr comb. The weather was quite warm, favorable for nectar secretion. This flow lasted until the 19th of October, then the weather turned cold and stayed cold. This meant that the bees did not have an opportunity to drive the excess moisture from the nectar stored in the combs. Consequently, colonies went into winter with unripened honey.

Bees in this area suffered a rather heavy winter loss. Unfortunately, that was a steady cold winter with very few opportunities for cleansing winter flights. Many colonies developed dysentery and died. Had there been at least two good flight days during the winter, one in January, and the other in late February, colonies having this unripened honey might have pulled through.

Some advocate feeding thick sugar syrup late in the season after the cessation of brood rearing. Years ago when we wintered our colonies in single-story hives, we did this. I recall that in 1922 we fed 2000, ten-pound pails of sugar syrup to over 1000 hives of bees in single-story hives. The food chamber idea had not then been developed. At that time brood rearing practically ceased about the first of October and we were busy feeding bees the first three weeks in October. We planned to have all feeding done by November 1.

It seems that the seasons have changed since that time because at present there is brood rearing going on in hives the first week in October in this locality and it would not be feasible to feed syrup under such conditions.

Referring again to the winter of 1935 and 1936, the hives were full of unripened honey. Had we decided to feed thick sugar syrup there would not have been any comb space for the syrup unless we had removed two or three combs from the center of each brood chamber to make room for the syrup. This would have involved a great deal of work

A snow fence and hives with paper protection.— Photo sent by Marvin W. Kosanke, Ripon, Wisc.

and it is doubtful, during the cold weather that prevailed, if the bees could have ripened the sugar syrup so late in the season. And so, it is quite a problem to know just what to do in areas where a late aster honey flow occurs. Beekeepers who do not have late aster honey perhaps should be thankful.

However, we have found that well ripened aster honey is not objectionable for winter stores. It does seem that when it is possible to feed one or two pails of thick sugar syrup the last thing in the fall, the bees are assured of a good quality of food early in the winter and with such stores they usually winter well.

How to Feed Syrup

We have tried different methods of feeding and we like the friction top pail method, because the syrup is placed directly above the brood chamber where the bees can get to it easily. Some put the pails of syrup with perforated lids, upside down over the frames. An empty super is placed on the hive to make room for the pails of syrup and the outer hive cover is placed on top. When the syrup is fed warm or almost hot, especially during cool weather, the bees will take it readily.

We used to use tartaric acid in the syrup to prevent it from crystallizing over the holes in the lids of the friction-top pails. About ¾ oz. tartaric acid was mixed with each 25 pounds of sugar used. The acid was stirred in with the hot syrup.

Another reason for using acid is that it tends to retard the granulation of the syrup in the combs. However, some authorities say that tartaric acid is unnecessary. But we used it to prevent the holes in the lids of the pails from becoming clogged with granulated syrup.

How to Make Syrup

Mix two parts of granulated sugar with one part water, either by weight or by measure. The water should be very hot and the sugar stirred in until all the granules have disappeared.

About 12 or 15 holes should be punched in the lid of each 10-pound friction top pail, using a 2 or 3-penny nail to do the punching. The bees will stick their tongues up through the holes and take the syrup quite readily.

Those who live in areas where practically no fall honey is stored, may have to resort to the feeding of sugar syrup. By all means feed the bees syrup if needed when combs of honey are not available.

A two-story hive boiling over with bees ready for winter. Note the flight hole in front in the middle of the upper story or food chamber.

Bees Will Not Overeat Like a Horse

Some beekeepers seem to think that if they leave too much honey for their bees in the hives they will become lazy and hesitate to go out after nectar. Of course, this is a mistake. Bees will not overeat and they will bring in nectar and pollen even though there is an abundance of food in the hives.

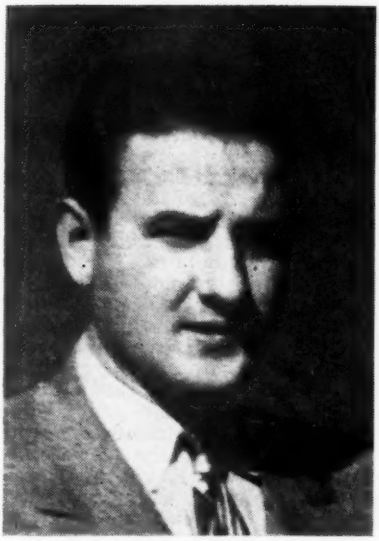
Those who leave an abundance of stores for their bees in the fall are well repaid in the spring with populous colonies that are ready for business when the first honey flow comes on.

Protection for Bees

Some years ago we used the quadruple packing case. Later we used the Buckeye packed hive. At that time we wintered bees in single-story hives. We were not 100 percent successful in wintering bees even with large packing cases with an abundance of packing material. Perhaps we did not have the very populous colonies we have at the present time in double story hives. We got away from the heavy packing mainly because of the extra labor and expense involved. Furthermore, we found that bees in large quadruple cases would drift quite badly during the winter and early spring months.

(Continued on page 637)

A New Extension Specialist for South Carolina



W. C. Johnson

The new Extension Beekeeping Specialist at Clemson, South Carolina to succeed the late Ned Prevost, is W. C. Johnson. Mr. Johnson was born at Richton, Mississippi, and graduated from Mississippi State College in 1949. He began his college work in 1941 but this was interrupted when Uncle Sam called him into the Army Air Force in 1943. Mr. Johnson held a teaching fellowship at N. C. State College from 1949 to 1951, during which time he took work leading to his master's degree. During the summer of 1950, Mr. Johnson worked for the Federal Division of Bee Culture in their Pollination Laboratory at Columbus, Ohio. He was concerned with the activities of bees in the pollination of red clover, and while at N. C. State College studied the activities and effectiveness of these and other pollinators in the seed set of alfalfa.

One Honey Plant Enthusiast Visits Another

By J. E. Johnson, Verona, Mo.

M. F. Bond, Joplin, Missouri, is a very practical, old-time beekeeper with an apiary of 50 or more colonies. During the years he has tested the real value of Vitex as a honey plant and has a grove of about 100 Vitex trees now 15 and 16 years old.

Some time ago I visited Mr. Bond and found his grove of trees in full bloom since about July 1. The bees were singing a merry song from daylight until dark, and with fair weather this will continue for three months or more.

Besides the hundred large trees, Mr. Bond has several thousand small ones in his little nursery. His start came from one lone tree near Salina, Kansas, which attracted a great deal of attention, as the bees were humming in it half the summer.

Adam Scott, of Joplin, who died about ten years ago, sent for some of the seed but he was told it would not grow. However, he succeeded in getting it to grow in flats where there was generous moisture and heat. Mr. Bond, at the time, had helped Mr. Scott, and got his trees from him originally.

Adam Scott sold some of the trees at prices as high as $3.50 each, and shipped many of them to foreign lands, even to China, where the Vitex originally came from. This strain of Vitex is much hardier than some other strains and the Scott grove has withstood temperatures of 20 degrees below zero without any injury.

Mr. Bond then had a few other Vitex trees that came from California that look much like the original strain but they freeze back in severe winter. For this reason he propagates only from the hardier strain.

I, myself, have about 500 small Vitex trees of this hardy strain and 30 large trees now in full bloom. I, too, shall work only with the hardier strain. I sent seed from this strain to a friend in Florida, John William, of Winter Park, who raises trees from seed and cuttings, and he already has a little Vitex nursery.

There is another strain of Vitex in Florida having a variegated leaf. This is less hardy and not as good a honey producer.

My Simpson honey plants from the old roots are now in full bloom, and my nearly 500 young plants

(Continued on page 637)

Langstroth Memorial Services

By F. R. Shaw and Wallace Parker

Some 60 persons attended the Memorial Services for L. L. Langstroth held on July 22 at the South Church in Andover, Massachusetts.

Following introductory organ music the Reverend F. B. Noss, Pastor of the South Church, offered a prayer. This was followed by introductory remarks by Dr. Frank R. Shaw of the University of Massachusetts, who stated the purposes of the Memorial Services. He indicated that such services were very appropriate, since 1951 marked the 100th anniversary of the discovery of the bee space by Langstroth. Furthermore, Essex County in which Andover is located has a heritage rich in agriculture. Dr. Shaw then expressed thanks to those whose contributions made the services possible and read the list of contributors.

The principal address, "Lorenzo Lorraine Langstroth," was prepared by Dr. E. F. Phillips, Cornell University, Ithaca, New York. Because of sudden illness, Dr. Phillips could not attend. His absence was noted and all wished that he could have attended.*

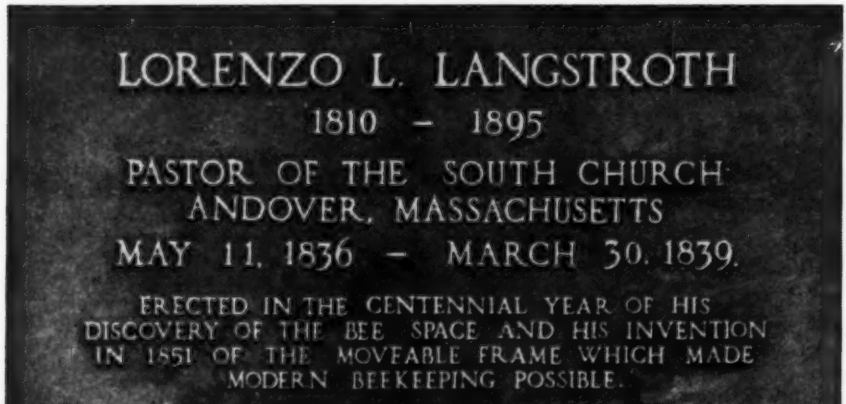
In the absence of Dr. Phillips, Mr. George Rea, Williamsport, Pennsylvania, was so kind as to deliver the address which brought out much of the details of Langstroth's life while in Andover.

Following the delivery of the address the group joined in singing "Bring, Oh Morn, Thy Music." They then adjourned to the rear of the church where Dr. H. J. Bennett, President of the Massachusetts Federation of Beekeepers' Associations, presented the Memorial Plaque. Dr. Bennett indicated that as a result of Langstroth's work, living standards were improved all over the world. The plaque was unveiled by Stephen Dyer, President of the Essex County Beekeepers' Association who also accepted this fine contribution for the church. The Services were closed with a prayer by Reverend Noss.

It is of interest that the District Beekeepers' Associations and the town of Andover, England united in sending their congratulations to the American participants in these services.

Massachusetts beekeepers have now erected markers in both the communities where Langstroth lived and worked in Massachusetts.

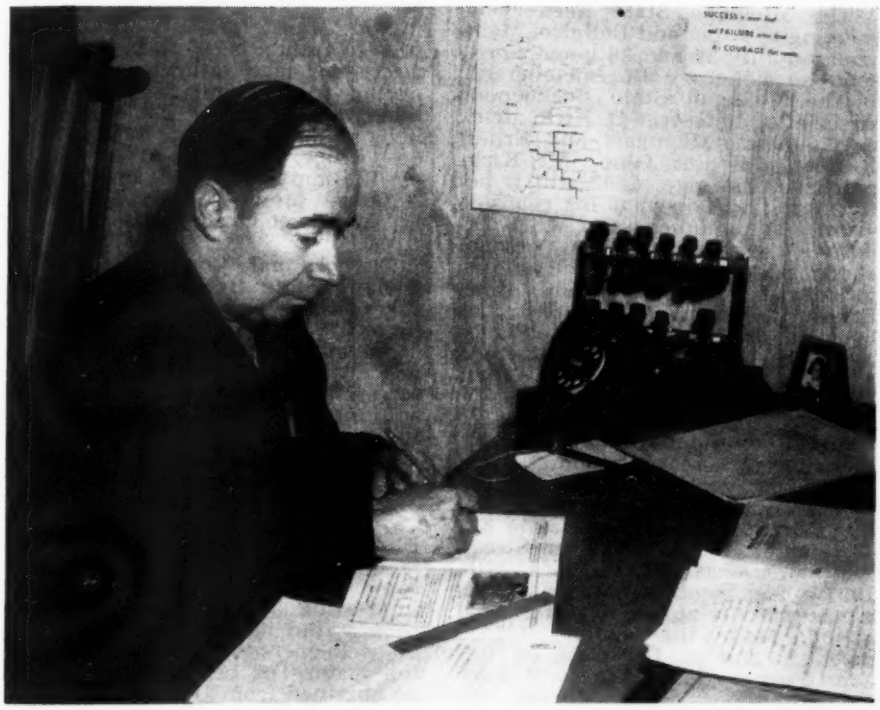
*[After the above was written Dr. Phillips passed on, August 21.—Ed.]


LORENZO L. LANGSTROTH
1810 - 1895
PASTOR OF THE SOUTH CHURCH
ANDOVER, MASSACHUSETTS
MAY 11, 1836 - MARCH 30, 1839.
ERECTED IN THE CENTENNIAL YEAR OF HIS
DISCOVERY OF THE BEE SPACE AND HIS INVENTION
IN 1851 OF THE MOVEABLE FRAME WHICH MADE
MODERN BEEKEEPING POSSIBLE.
DEDICATED JULY 22, 1951
BY
THE MASSACHUSETTS FEDERATION
OF BEEKEEPERS' ASSOCIATIONS
IN RECOGNITION OF HIS OUTSTANDING WORK
IN BEEKEEPING.

The Memorial Plaque dedicated to Lorenzo L. Langstroth.

Tribute to Elmer Carroll

By R. H. Kelty, East Lansing, Mich.



Elmer Carroll at his desk making up the "Beekeepers Magazine" of which he was editor.

The beekeeping industry lost a friend in the passing of Elmer Carroll. He was a shining example of what it takes to succeed as a beekeeper. He had unwavering faith in the future of beekeeping. Unable to move about and in physical pain much of the time, he always had a smile and a joke for his visitors. I never heard him complain. He worked long hours every day his health would permit, typing copy, composing his friendly, instructive editorials and carrying on an extensive correspondence with beekeepers everywhere.

Elmer was deeply interested in the Michigan Beekeepers' Association and spent many hours on promotional material for honey, appeals for membership and association-backed projects such as honey recipe leaflets, honey posters, honey exhibits, and radio scripts for Honey Week.

I had an hour's visit with Elmer a few hours before he was stricken. He was cheerful and busier than usual writing publicity material for the Michigan State Fair Special Feature—Pollination and Honey Show —and the Michigan Honey Queen publicity.

Elmer was a friend to all. He was active in his community as a member of the School Board and in Boy Scout work. But his first love was beekeeping and he devoted most of his efforts to the rendering of service to beekeepers, much of it gratis.

It seemed to me that Rev. Wilson M. Tennant spoke for all of Elmer's friends when he said, at the funeral services, that he had visited with Elmer many times and always came away with the impression that Elmer had done more for him than he had for Elmer.

XUM

Just News

The **Michigan State Beekeepers'** meeting at Alma and Bellaire, Michigan, on July 27 and 28 voted to extend an honorary life membership in the Michigan State Beekeepers' Association to George H. Kirkpatrick at Kalkaska, Michigan, and Ernest R. Root of Medina, Ohio. Mr. Kirkpatrick at the age of 92 still is actively selling honey at his roadside stand. The uniqueness of Mr. Kirkpatrick's exhibit and his personal charm have made him well known to tourists and beekeepers alike. Ernest R. Root, in years past, has been in almost regular attendance at the Michigan State meetings. As a young man he attended his first Michigan meeting on a bicycle.

* * * * *

Middlesex County Beekeepers' Association (Mass.) will hold its first fall indoor meeting at their regular winter quarters at the Waltham Field Station of the Mass. State Experimental Building, Beaver Street, Waltham, Mass., on October 27th, 1951. The meeting will start with a buffet dinner at 6:30 to be followed at 8 P. M. by the regular business meeting, and at the close of this John Furber, Sec.-Treas., will show colored slides made during the spring and summer outdoor meetings during the 1951 season. Beekeepers in the county are invited to attend this meeting.—John H. Furber, Sec.-Treas.

* * * * *

The annual Georgia Beekeepers' Association meeting will be held on November 13 and 14 at Abraham Baldwin Agricultural College, Tifton, Ga.—J. H. Girardeau, Jr., Sec.

* * * * *

The Nebraska Honey Producers will hold their annual meeting in connection with Farm and Home Week at the College of Agriculture, Lincoln, Nebraska, on Thursday, October 18.—Edw. A. Wolfe, Sec.

* * * * *

The Essex County Beekeepers' Association of Mass., held their monthly meeting at the Topsfield Fair Grounds, on September 8. A center of attraction was the honey booth, located in the Grange Building, where extracted, comb, and chunk honey was on display. Most of the prizes for honey entries were won by members of the Association. Member Walter Copeland, of Lexington, Mass., took first prize for a hive of Italian bees, placed inside of a screened cage, gathering pollen and nectar from goldenrod and many other honey plants. The next meeting of the Association is to be held on October 13, 1951 at the apiary of William Burnett, 255 Oakland Avenue, Methuen, Mass.—Charles H. Greenwood, Sec.-Treas.

* * * * *

The Annual Convention of the Indiana State Beekeepers' Association will be held on Saturday, October 27, in War Memorial Building, Indianapolis, Indiana. The program has not been completed, but an interesting meeting is assured, with a number of good speakers. Look for complete announcement in the October Association letter.—Gilbert Perigo, Secretary.

* * * * *

"Beekeeping in Antiquity", by Dr. H. Malcolm Fraser of London, England, the second edition of which came off the press recently, is an interesting and valuable book which should find its way to the libraries of beekeepers who are interested in the history of beekeeping. It may be obtained from University of London Press, Ltd., Warwick Square, London. Price, 3/6 net.

* * * * *

W. F. Matther, Pleasant Hill, Missouri, a prominent beekeeper interested in association activities and displaying honey at Fairs, passed away July 20.

* * * * *

The New Hampshire Beekeepers' Association has held five meetings this season, in Durham, E. Kingston, Lebanon, Manchester, and Westmoreland, attendance varying from 30 to more than 100. Emphasis was put on one phase of beekeeping at each meeting and a program built around that phase. Our guests have included the following groups: Essex County Massachusetts Beekeepers' Association, York-Cumberland, Maine Beekeepers' Association, and the Vermont Beekeepers' Association. We have enjoyed the past season very much and are looking forward to the 1952 year of fine beekeeping fellowship.

The fifth and last meeting of the 1951 season was held on Saturday,

September 1, at the home of Cameron Paine, President, of Westmoreland, N. H. Although the weather was far from cooperative and the day was a wet one, more than 50 beekeepers attended and enjoyed several very interesting and informative talks.

Officers elected to serve for the coming year include Lawrence C. Rising, President, Cameron Paine, Vice-President, and Paul B. Knight, Secretary-Treasurer. Vacancies on the Executive Committee will be filled by appointments at a later date.—Paul B. Knight, Sec.-Treas.

* * * * *

Much of Texas had a good rain on September 12 and 13 varying from a little over an inch to twelve inches in Alice and averaging perhaps nearly three inches. In some sections this was the best soaking rain in two years. The state as a whole has suffered from the worst drought in years.

* * * * *

Tazewell (Ills.) Beekeepers' Association has scheduled the next meeting for October 7, to be held at the home of Floyd J. Strope in South Pekin. Since this is to be the last meeting of the season, we urge all members and friends to attend. Individual notices will be mailed in due time.—Joseph Jachman, Sec.

* * * * *

The Florida State Beekeepers' Association is holding its annual meeting Monday and Tuesday, October 22 and 23, in St. Petersburg, Florida, at the Soreno Hotel. The theme of the meeting this year will be centered around advertising honey from the most practical viewpoint. Beekeeping subject matter of interest to all beekeepers will also be given on the program, and one beekeeper will be honored at the banquet with a meritorious service award. Those receiving this meritorious service award so far are: R. E. Foster, retired apiary inspector; L. M. Lewis, Havana, past president of the Florida State Beekeepers' Association, and L. M. Dewey, Merritt Island, also past president of the Florida State Beekeepers' Association. Willard M. Fifield, Director, Agricultural Experiment Station, will act as toastmaster at the banquet. There will be small exhibits of different methods of advertising honey to the retail consumers displayed in the lobby of the hotel. One of the outstanding speakers on the program will be H. C. Dadant, who will discuss the progress done in disease resistant hybrid bees.—John D. Haynie, Chairman Program Committee.

* * * * *

Dedication of the Langstroth Bee Garden at the Morris Arboretum, Chestnut Hill, Philadelphia, on October 20, 1951 at 2 P. M.:

PROGRAM

Invocation: The Reverend Burleigh Cruikshank, D.D., L.L.D., Minister, Presbyterian Church of Chestnut Hill.

Welcome to Guests: Dr. Edwin B. Williams, Provost of the University of Pennsylvania and Chairman of the Committee on Administration of the Morris Arboretum.

The Langstroth Bee Garden—Inception and Objectives, Dr. J. R. Schramm, Director of the Morris Arboretum.

Langstroth and the Academy of Natural Sciences—M. Albert Linton, President of the Academy of Natural Sciences.

The New Role of Honey Bees in our National Economy—Dr. James I. Hambleton, In charge of Division of Bee Culture United States Department of Agriculture.

Introduction of Mr. E. F. Phillips, Jr., who will read the following paper completed by his father before his untimely death on August 21—Edwin J. Anderson, Professor of Apiculture, Pennsylvania State College.

Langstroth—Philadelphia Beekeeper —written by Dr. E. F. Phillips, late Professor Emeritus of Apiculture, Cornell University.

Unveiling of the Lorenzo Lorraine Langstroth Memorial Bench by William Langstroth Cowan of Toronto, grandson of L. L. Langstroth.

The dedicatory exercises will take place at the Bee Garden, followed by tea at the Mansion. In the event of unfavorable weather, the dedication will be held in the Mansion.

Our Cover Picture

Another attractive Vermont roadside honey sign. The sign is so placed as to be clearly visible for some distance from either side. It is the sign of George Harvey on Route 12 between Woodstock and Barnard.

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

"When the frost is on the punkin,
and the fodder's in the shock—"

Yes,—
When radio programs are back again, and standard times return;
When children saunter off to school new lessons soon to learn,
'Tis autumn.
Then appetites grow keen once more; for something good they long.
Serve honey then; it hits the spot; with it you'll ne'er go wrong,
In autumn.

When a beekeeper hears the name, "American Honey Institute", what does he think of?

He thinks of Madison, Wisconsin, the home of the Institute. If he has ever paid a visit to the home offices, he remembers the spacious layout of offices on the fourth floor of the Commercial State Bank Building overlooking the State Capitol; he remembers the friendly smiles of the employees of the Institute when he came in the door; he remembers the personal chat with Mrs. Grace, Director of the Institute. Perhaps he took a short tour through the offices to look at the promotional displays the Institute has drawn up for honey.

He thinks of recipes, scores and scores of honey recipes. He knows that each of these recipes is tested to make sure of its reliability before it is passed on to a honey consumer. He remembers the attractive booklets and leaflets that these recipes are printed in. He cannot fail to recall how the Institute prints these booklets in quantity, then sells them back to the beekeeper at the lower cost this mass printing offers. He knows that a variety of leaflets and books has been published at different prices to fit the different pocketbooks of the beekeepers. And perhaps he sits down to write the Institute for one of its price lists so that he can make out his order soon.

He thinks of the posters, stickers, streamers, and placards that the Institute carries. He knows from experience that such promotional pieces are most effective, that no honey display is complete without graphic means of showing honey to the public. All of these posters are done in color to attract attention. Some have standards so they can stand on top of a counter. Some are made for store windows. The stickers can be put on honey jars, letter envelopes, or Christmas cards.

He thinks of the television programs that have been devoted to honey cookery. A recent television program emanated from Milwaukee and devoted an hour to cooking with honey.

He thinks of the radio food shows that invariably mention honey and knows that it is not an accident that they do. Every month the Institute sends new honey releases to radio stations all over America, to provide them with honey recipes. Many station food editors want a supply of our leaflets to offer to their listeners.

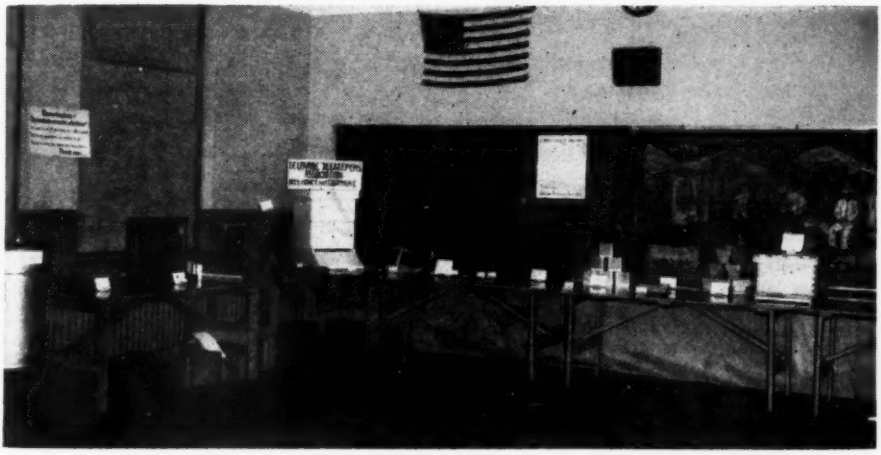
He thinks of how lucky he is to have an organization like the Institute to represent him at food conventions and advertising gatherings. It is through meetings like this that honey gets prestige with other food concerns, which think of the honey industry as a unified, well-organized, progressive industry. It is necessary to keep up this acceptance of the honey industry by other food industries if honey expects to keep on a par with them.

He thinks of his own obligation to the Institute, for he knows that the Institute gets its operating funds from the voluntary contributions of beekeepers such as himself. The membership list of the Institute is long and resplendent with names of leading beekeepers throughout the country. He knows, however, that any contribution, so long as it comes from the bottom of the heart, is treated with equal gratitude and respect by the Institute. For 20 years the Institute has thrived on this system of volunteer dues. We trust it shall continue to do so for at least another 20.

And he thinks of National Honey Week, which is celebrated the last week in October. This Institute-sponsored event gives the beekeeper a grand opportunity to promote his honey on a large scale. And he takes pen in hand to write the Institute for all publicity helps that are especially drawn up for National Honey Week.

Beekeeping Exhibit at Wilmington (Delaware) Hobby Show

By G. H. Latham, Wilmington, Delaware



This photo of the exhibit of the Delaware Beekeepers' Association was taken by E. D. Taylor.

The photograph shows the exhibit of the Delaware Beekeepers' Association at the annual "Hobby Show" held in the P. S. DuPont High School in Wilmington, Delaware, March 29, 30, and 31, 1951. Over 600 exhibits of the most various kinds were viewed by more than 12,000 people during that time. The bee exhibit, which was non-competitive, was awarded a blue ribbon as an "Outstanding Exhibit". The exhibit was composed of bees, beekeeping equipment, and both comb and extracted honey.

One of the exhibits of interest was a section of a wild bee-tree showing the knot-hole entrance and the combs built in the "hollow" of the tree. The big interest, however, centered in two observation hives, one with Italian, the other with Caucasian bees. We were kept busy from 7 to 10 o'clock each of the three nights, and from 2 to 5 Saturday afternoon (the last day) explaining the exhibits to the thousands of people who thronged the school. Many wanted to see the queen, or as a good many said, the "king bee".

Our two queens in the observation hives assisted us well by remaining conveniently in view most of the time, and by nonchalantly laying eggs as if nothing unusual were happening, or perhaps I should say as if they knew how interesting their activity was. The people were intrigued by these queens.

An effort was made to make the exhibit educational as to the value of bees, not only to the beekeeper, but also to the country as a whole. A placard, for example, pointed out that the value of bees for pollinating crops is many times the value of the honey and wax produced; for example, the yield of clover seed per acre is increased tenfold when there are plenty of honeybees to pollinate it, and orchardists the country over depend on bees for pollinating their fruit trees. To show, however, that beekeeping is a valuable industry to the nation in the monetary value of the honey and wax produced, the following table was shown on the placard headed, "Economic Value of Honeybees". The data was obtained through Dr. L. A. Stearns, of the Extension Division of the University of Delaware, who has for a long time been active in apicultural affairs in the state and of the greatest assistance to beekeepers in this region.

	UNITED STATES	DELAWARE
Number of colonies of bees in 1950	5,612,000	3,000
Pounds of honey produced	233,013,000	75,000
Value of honey produced	$35,678,000	$19,000
Pounds of beeswax produced	4,275,000	2,000
Value of beeswax produced	$1,830,000	$1,000

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

NEW CROP of honey shipped daily from producer in Florida. Pure orange blossom, 5 lbs., $2.25; Pure Florida cut comb honey, 5 lb. pail, $2.75. No C.O.D. orders. All shipments prepaid. E. R. Raley, Daytona Beach, Florida.

Clover honey in sixties, ton lots. Walters Apiaries, Burgoon, Ohio.

ANY GRADE—Any amount. Alexander Co., 819 Reynolds, Toledo, Ohio.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 1.

COMB HONEY for sale. Gordon Pratt, Munnsville, N. Y.

HONEY, white extracted, mostly clover, in 60 lb. cans, ready for bottling, 16c per lb. fob Louisville. Lose Brothers, 206 E. Jefferson St., Louisville, Ky.

NO. 1 section white clover comb honey. Engle Apiaries, Kearneysville, W. Va.

MICHIGAN'S FINEST WHITE CLOVER HONEY. New sixties. Fully ripened and CLEAN. You will be pleased. Sample, 20 cents. John McColl, Tecumseh, Michigan.

CLOVER COMB HONEY FOR SALE—Ready to ship. Write for prices. C. W. Schrader, Waterville, N. Y.

BUCKWHEAT AND GOLDENROD HONEY. Both in comb and extracted. Chas. B. Hatton, R. 1, Jefferson, Ohio.

FANCY CLOVER comb and extracted honey for sale in any quantity. Case Apiaries, Robert Case, 218 Bristol Street, Canandaigua, N. Y. Phone Canandaigua 552 R.

MICHIGAN Clover extracted. A can or a carload. Harris and Son, Saint Louis, Michigan.

BUCKWHEAT and fall comb and extracted honey. Noel J. Loucks, Springboro, Pa.

STOLLER'S fancy clover honey in new sixties. Stoller Honey Farm, Latty, Ohio.

HONEY FOR SALE. Clover, 60, pails, ton and truck loads delivered. M. E. Ballard, Roxbury, N. Y.

EXTRA white clover in 60's, 15c; amber, 10c; No. 1 white comb, $7.00 per case; No. 2 and water cap, $5.00. F. J. Smith, Rt. 1, Castalia, Ohio.

SOME FINE LIGHT AMBER AND AMBER N. J. HONEY IN 60-lb. cans. Also some extra fine flavored PALMETTO honey in Florida. Albert G. Hann, Glen Gardner, N. J.

COMB HONEY by case or ton. Harold Benjamin, McComb, Ohio.

MICHIGAN'S finest raspberry, basswood, clover comb honey, in 4 x 5 sections. Extra fancy, $10.00; Fancy, $9.00; No. 1, $8.00; No. 2, $7.00; Culls, $6.00, case. E. Z. Quick Way B Farms, Walloon Lake, Michigan.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on COD terms except where the buyer has thoroughly established his credit with the seller.

CASH FOR YOUR HONEY — Light extracted or comb. Regular trade send sample. 60 lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

CASH FOR BEESWAX. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & Company, 1360 Produce St., Los Angeles 21, California.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

CARLOADS or less of honey and wax. Send sample and price. Alexander Company, 819 Reynolds, Toledo, Ohio.

WANTED — White and amber honey. Any amount. D. F. Treap, R. D. 3, Box 222, Kent, Ohio.

WANTED—EXTRACTED HONEY— Clover or light amber. C. H. Denny, Rt. 4, Ravenna, Ohio.

HONEY AND WAX WANTED — Mail sample. Advise quantity. BRYANT & SAWYER, 2425 Hunter St., Los Angeles 21, California.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 2. Ohio.

BEFORE YOU SELL your clover honey contact us. Send samples and tell us how much you have. The Delaware White Clover Apiaries, 139 West William St., Delaware, Ohio.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 percent saving. Walter T. Kelley Co., Paducah, Kentucky.

PURCHASING all kinds and grades of Honey under Price Support Program. Write for details giving quantity; mail sample. Finger Lakes Honey Producers' Coop., Groton, New York.

FOR SALE

We carry a full line of ROOT QUALITY Bee Supplies. Prairie View Honey Co., 12303 12th St., Detroit 6, Mich.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation, Onsted, Mich.

The only comb foundation plant in the East. We sell foundation. work your wax, render combs and cappings. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

BEE SUPPLIES of all kinds. Catalog free. Hodgson Bee Supplies, Ltd., 565—13th Ave., New Westminster, B. C. Canada.

YOUR WAX WORKED INTO quality medium brood foundation for 23c pound; 100 pounds, $18.00. Fred Peterson, Alden, Iowa.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., PADUCAH. KENTUCKY.

QUEEN OUTFIT, 300 Nuclei. 35 colonies bees, for sale cheap. D. W. Howell, Shellman, Georgia.

SURPLUS APPARATUS. Telescope and inner covers; comb honey supers; shallow supers. E. G. CARR, Pennington, N. J.

BEE SUPPLIES—Tin packages: 10 sizes glass jars; paper shipping supplies; window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

FOR SALE—Volumes of Gleanings from 1880, bound and unbound. If interested, write Harold Nebel, High Hill, Mo.

PROTECT STORED COMBS from moth damage with Tritox Moth Crystals. Circular, prices. Write Tritox Chemical Co., Washington, Indiana.

BEEKEEPERS NEEDING SUGAR for fall or spring feeding. I have 50,000 lbs. of good clean sugar. Will sell all or part at $5.00 per cwt. Will take in trade white clover honey delivered Omaha. You can haul sugar back on return trip. Write John Tideswell, 2711 No. 63rd St., Omaha, Nebraska.

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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Michigan Headquarters for
Root QUALITY
Bee Supplies
Complete Line of Bee Supplies and Honey Containers
Prompt Service
Michigan Bee and Farm Supply
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Wisc. No. 1 White Honey
100% Pure Filtered
Write for future information.
Fox Valley Apiaries
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HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
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AMBER and LIGHT AMBER

HONEY

Wanted

Mail samples and prices

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HONEY WANTED

Cut Comb and Extracted

Advise what you have

T. W. BURLESON & SON

WAXAHACHIE, TEXAS

3-banded Italian

Queens	$1.00
2-lb. pkg. with qn.	3.00
3-lb. pkg. with qn.	4.00

W. E. PLANT

Hattiesburg, Rt. 2, Miss.

Package Bees and Queens for 1952

Best Quality Italians Only.

Order early.

Geo. A. Hummer & Sons

Prairie Point, Miss.

Est. 1892

FOR SALE: Complete bee business, modern and up to date, in the beautiful Flathead Valley of western Montana. More than 700 10-frame two-story colonies, hundreds of supers of combs, 19 registered and protected locations, new 40 by 80 two-story honey house completely equipped, water, electricity, truck with tailgate lift. Heart condition makes sale necessary. If interested, write for complete particulars. J. D. Harrah, Charlo, Montana.

FOR SALE—Sugar at less than half of wholesale (4 cents per lb.). Discounts on semi or carlots. We contracted this sugar from second floor of flooded K. C. Warehouse. Not submerged but partially affected by dampness and seepage. Condemned for human consumption but excellent bee feed. Can furnish Government certificates of release for feeding bees. Can accept honey in payment. Can deliver in 6 ton lots or more. Weldon Bee Farms, Warrensburg, Missouri. Phone 49F4 after 8 P. M. or before 7 A. M.

55 Colonies of bees. John Hallbaner, Wales Center, N. Y.

31 colonies, extra equipment, extractor supplies and honey crop. Erwin Schweinhagen, 628 Brighton Ave., Toledo, Ohio.

Modified Dadant reversible extractor, $20.00; printing press, hand lever, operated on heavy cast stand, $50.00. Gerhard Trachte, 813 - 3rd St., Watertown, Wis.

FOR SALE—8 colonies of bees cheap, good condition and plenty of honey, $5.00 each. Extra comb honey equipment and 4-frame Root extractor. Must sell! Ted Ballard, Rockford, Iowa.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

Three Banded Italian bees and queens for 1952. Alamance Bee Co. Graham, N. C.

CAUCASIANS—Booking orders for 1952. Lewis & Tillery Bee Co., Route 1, Box 280, Greenville, Ala.

BEES FOR SALE AND LEASE—Montana, Wyoming, Idaho, Nebraska. Contact Bradshaw & Sons, Wendell, Idaho.

GOLDEN QUEENS, $1.00 airmail; 24 to 49, 90c; 50 and up, 80c. O. E. Brown, Rt. 1 Asheboro, N. C.

YANCEY HUSTLERS, Three-band Italians—bred for business. Select queens, $1.00 each; $8.00 per dozen. Guaranteed to please. Caney Valley Apiaries, 2500 Nicholas, Bay City, Texas.

SHORT'S QUEENS ARE GOOD QUEENS. Try them and you will find their colonies tops in production, gentleness and freedom from diseases. Three-banded Italians only. Used by leading honey producers for more than 30 years. Requeen now for maximum production next year. $1.00 each; 10, $9.00; 25, $20.00. Postpaid. Prompt shipment. H. C. Short, Fitzpatrick, Ala.

SEEDS

EVERFLOWERING LOCUST for fall planting. Stocky trees four feet and taller; each $2.95, three for $7.50; express not prepaid. Ask for our honey plant catalogue. Pellett Gardens, Atlantic, Iowa.

MAGAZINES

WESTERN CANADA BEEKEEPER—Official organ of the Manitoba Beekeepers' Association. One year, $1.50; two years, $2.25; three years, $3.00. In combination with Gleanings in Bee Culture, $2.75. 211 Affleck Bldg., Winnipeg, Canada.

THE BEE WORLD, international and scientific journal on bees and beekeeping, with apicultural abstracts. Monthly, including membership in the Apis club, $1.75 per annum. Specimen copy 12c U. S. postage stamps, from The Secretary, The Way's End, Foxton, Royston, Herts, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

KNOW interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh, Dist. Naini Tal, U. P., India, or available through them. Subs. Rs7/ or 10 shillings or 2.25 dollars per annum. Single copy, Rs ¼s. 1/9 or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

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Write now to the Editor
P. O. Box 20, West Maitland
New South Wales, Australia

LIVE AND LEARN

(Continued from page 606)

as standard practice. Uncapping was first done with thin frames. Some of my combs this year had thin spots, because when drawing foundation I like to use ten frames in the super. My honey supers generally have nine frames, which give nice fat combs without making them so heavy that they mash up with the slightest excuse. When I ran into one of those bumpy combs I cut down for the fat parts and then up to get the spots that were missed.

Try it sometime. It may be awkward to change your habits, but once you get the hang of it, it's duck soup.

Your choice of Two Outstanding Strains:

Queens:	"Magnolia State" Italians	Dadant "Starline" D. R. Hybrids
1-24	95c each	$1.20 each
25-99	85c each	1.10 each
100-up	75c each	1.00 each

Clipped and Marked Free

Jensen's Apiaries
Macon, Mississippi

LADYLIKE CAUCASIAN

Bees and queens for 1952. Prices available about January 1st. Book orders early to avoid disappointment.

Caucasian Apiaries
Castleberry, Ala.

KOEHNEN'S
Package Bees and Queens
For Quality and Service
KOEHNEN'S APIARIES
GLENN, CALIFORNIA

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, regulations, and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 50c a year extra

AMERICAN BEE JOURNAL
Hamilton, Illinois

We are interested in Buying HONEY
Send sample and price
T. J. Paisley Co.
Medina, Ohio

3-WAY HYBRID QUEENS

Requeen your colonies with the queens developed on Kelley's Island, Ohio.

We have recently received new breeder queens and plan to have queens available all fall.

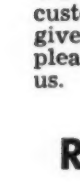
Do not confuse these queens with other hybrids. Specify Kelley's Island 3-Way Hybrid or Regular stock postpaid.

1-26	$1.00 each
26-100	.90 each
100-up	.85 each

We wish to thank our many customers for the nice business given us this spring. If you were pleased, tell others, if not, tell us. It is our desire to please.

Rossman & Long

P. O. Box 133, Moultrie, Ga.



CAUCASIANS
CARNIOLANS

Prolific, good winterers, GENTLEST OF ALL RACES OF BEES. A few queens left. Price; unt. 90c each. Tested $1.50 while they last. October is not too late to replace failing queens. Better than to wait till spring.

Albert G. Hann, Glen Gardner, N. J.

Package Bees and Queens

Jackson Apiaries
Funston, Georgia

John M. Davis Strain Italian Queens

1-24	24-up
$1.25	$1.20

Daughters of ABBA Tested Stock

1-24	24-up
$1.50	$1.40

LITTLE APIARIES
Shelbyville, Tenn. P.O. Box 122

BEE LINES TO THE EDITOR

(Continued from page 582)

a modern hive. After that, I would help a beekeeper in my home town during my spare time. This was all of 45 years ago; I am 60 at present." —H. J. B., Mich.

* * * * *

"I am somewhat doubtful of Mr. Killion holding the world's record of 264 excellent sections of comb honey per colony since this record was made by cutting down double brood chambers to singles, page 538.

"We have a beekeeper here at Washington, Indiana, Mr. Frank Sponn, who is a market gardener and keeps bees for pollination purposes and who operates his colonies the year around in single story 10-frame hives although I have preached to him for years the importance of double brood chambers. He will have nothing to do with two-story hives, half-depth chunk honey frames, shallow extracting frames, and operates his colonies strictly for comb honey all in single-story hives.

"Mr. Sponn has just removed (Sept. 1st) six comb honey supers, 10-frame size, from a single story hive, every section perfectly filled and capped, a total of 168 sections from a colony that never did have a double brood chamber and no expert attention or coddling. His remaining single-story hives have produced from 3 to 5 section comb honey supers per hive. So the longer I live the less I think I know about bees and beekeeping. Mr. Sponn attributes his success to requeening every year, raising many of his own queens and to as near perfect brood combs as it is possible to produce. The colony that produced the 168 perfect sections had brood in all ten brood frames from side wall to side wall.

"This all reminds me of the news story going the rounds in our local newspaper. It seems that one guy thought he had the world's record beat for a soy bean vine which had 137 pods which he proudly exhibited to the editor with the usual front page write up. Another guy thought 'Heck, that's nothing', so he brought in a soy bean vine which contained 168 pods all full of soy beans. This brought another front page write up. Another soy bean grower said to himself—'I'll show 'em', and brought in a vine containing 243 pods. The editor threw up his hands, 'I quit. My office now looks like a hay mow."—S.H.B., Ind.

TALKS TO BEGINNERS

(Continued from page 624)

Perhaps we would have less winter loss if we continued packing bees heavily as we did years ago. However, at present, we use single-walled hives, double story, the upper story consisting of a deep super. We have a small opening or augur hole about the middle of the front of each upper chamber. This is what we call a safety valve. Bees that need a flight can easily get out of the hive through this small hole during a day that is warm enough for bees to fly. There is no danger of bees suffocating during an ice storm. This small upper entrance is practically adjacent to the winter cluster which is found near the front of the hive. It seems easier for bees to fly out through this 5/8" hole in the front of the upper story to take a winter flight than to go down through the bottom of the hive to use the bottom entrance. We do leave a small bottom entrance about 4" x 3/8", small enough to exclude mice. This is in addition to the upper entrance or augur hole.

In sections of the country north of here it may be advisable to pack bees for winter. There are various methods of applying packing and different kinds of packing materials. Some wrap hives in heavy building paper, leaving a small opening in the paper adjacent to the opening in the hive. The black building paper absorbs the rays of the sun and keeps the hives inside warmer than if exposed to the winter winds. We have tried this type of packing and like it quite well. We also have tried building paper with four or five inches of wheat or oat chaff on the sides between the paper and hive and six or eight inches on top.

Most of our hives have no packing whatever. We aim to have them well packed with honey on the inside. We tell beekeepers that if they are havng success with their present method of wintering—stick to it. Don't experiment on too large a scale with some other method of wintering with which you are not familiar.

HONEY PLANT ENTHUSIASTS

(Continued from page 625)

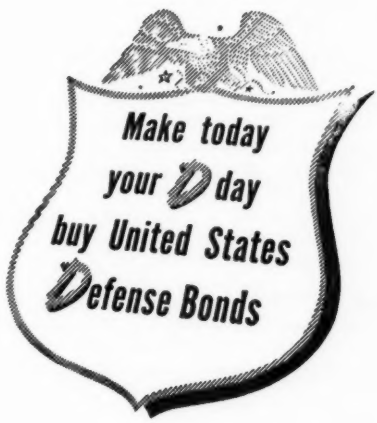
started blooming about August 1st. If not too dry, they will continue until frost.

The Golden honey plant stood last year's drought of four months without the loss of scarcely a plant. The old plants that come from the roots were just beginning to bloom in the middle of July.

I now have 41 colonies of bees and the Golden honey plants along our near-by small river make a honey flow almost equivalent to clover. The honey is of a light golden tint and of fine flavor.

The honey from Vitex is a little darker than that from clover but of good flavor. Mr. Bond has a sale for all his honey right at home, the customers furnishing their own containers for bulk comb and extracted honey. Nearly all his surplus has a Vitex flavor and is in good demand by his regular customers.

KNIGHT'S
3-Banded Leather Colored
Italian Bees and Queens
Prompt Service
Full Weight Packages
Young Laying Queens
Your Satisfaction
Guaranteed
No Charge for Clipping
JOHN T. KNIGHT
HAYNEVILLE, ALA.



QUEENS

YORK'S QUALITY BRED ITALIAN QUEENS

The Strain that Leading Honey Producers Prefer

1 to 24	25 to 99	100 up
$1.00 each	85c each	75c each

None better regardless of price

York Bee Co.

Jesup, Georgia

(The Universal Apiaries)

NEED A QUEEN?

We have them, Northern Bred and full of VIM, VIGOR, and VITALITY. Held in strong nuclei for all late comers.

1-9, $1.00 each; 10-24, 90c; 25-99, 80c; 100, 75c each.

White Pine Bee Farms
Rockton, Pa.

Howard Weaver's Caucasian Queens

1 - 24 $1.00 25 - 49 $0.90
50 up $0.80

No charge for clipping or marking.
Air mailed on request.

Howard Weaver Navasota, Texas

SUNKIST

Light colored Italians or Kelley's Island queens.
Airmailed - postpaid - clipped, each, ... 65c

Sunkist Bee Company
Convent, La.

Healthy Italian Bees & Queens
Write for 1952 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

High Quality Italian Queens
by Air Mail
75c each
10 or more, 65c each.
Carlus T. Harper, New Brockton, Ala.

Protect Your Future. Buy Your Extra Savings Bonds Now.

THE PUZZLE OF PELLETT HONEY

(Continued from page 601)

to eradicate. Although for most purposes we have fairly satisfactory legumes for use in rotation, our present agriculture is badly in need of more legumes of a permanent nature.

Animals like this clover. We have received reports of small plantings being hard to establish due to wild rabbits eating the leaves as fast as they come out. We have a report from the far west of it being termed "Deer Clover" due to the deer keeping it eaten back. Also cattle will go for it. Apparently it will make one full crop of hay in a season. If cut after it comes into full bloom a second heavy bloom does not occur.

From our observations we see the following advantages of this new clover:

It is apparently immune to winter injury due to extreme cold or open winters which are often damaging to other legumes. It comes from a high altitude region and our observations and reports we have received indicate complete winter hardiness. The spreading root system does not offer much prospect for winter injury because of heaving.

Due to the habit of growth, it may be expected to be a long lived plant and the heavy root development should be most valuable for soil holding and humus building. It appears to hold promise for planting in permanent fence rows and roadsides.

It can be propagated by either roots or seed. In the absence of available seed, most of the increase has come from root divisions so far. Some plantings have been started by simply dropping the roots into shallow furrows and covering with moist dirt in the early spring. It seeds heavily under right conditions and can be also propagated by seed, once there is sufficient acreage available from which to harvest seed crops.

Although some reports indicate that it may not attract the bees in all localities, our observations are that the bees work it enthusiastically under right conditions. It blooms heavily for five or six weeks and very apparently yields considerable nectar. If it comes into widespread use, it should be a boon to many a bee pasture.

This clover is truly an interesting

(Continued on next page)

ROADSIDE HONEY SELLING

(Continued from page 586)

one with lettering on both sides so it can be seen from both directions. This is part of our stand. The sign is up over the shelves. The other two approach signs are 200 feet from each side of the stand. Have large, neat letters that are readable at a distance.

Be prepared to answer a lot of foolish questions. The public really knows very little about bees or honey. Don't get excited when a large car, perhaps a Cadillac, stops. It is probably only a lady wanting a one pound jar, which she explains to her lady friend they can split between them. Fortunately there aren't many customers like that. We have noticed that it's the poorer looking people in the older cars that buy the large quantities.

You'll have people stop that really just want to talk. Be courteous to all, regardless of the size of the sale.

We have tried to sell on week days, but it didn't pay when you have to travel a distance. We have to drive about 35 miles. The Sunday shoppers are the ones that are out for a good time, and they are the spending ones. This may not be so good for some people who might object to selling honey on Sunday. It works fine with us, as we keep the original Bible Sabbath which is Saturday.

You meet a lot of people and make a lot of friends. It's so much more interesting than begging store keepers to buy from you, also more profitable.

THE PUZZLE OF PELLETT CLOVER

(Continued from previous page)

plant. It has such entirely different habits of growth from the clovers to which we are accustomed and has so many possibilities it intrigues the imagination. There are many questions regarding it's behavior in different localities and under different field conditions that will take time and many trials to gain answers thereto. It has so many apparent advantages that we continue to hold zeal for the plant which is named Pellett Clover by Iowa beekeepers.

PROTECT YOUR FUTURE. BUY YOUR SAVINGS BONDS NOW.

Queens Our Specialty

Italian, Caucasian, and Carniolans

Three Isolated Mating Yards to Prevent Mixing Breeds

ITALIANS	$0.90 each
Caucasians	1.00 each
Carniolans	1.25 each

Italian queens after June 1st, 60c each, any number.

All Queens shipped by Air Mail and guaranteed to please.

Walter D. Leverette Apiaries

Box 364 Fort Pierce, Florida

BESSONET'S "GULF BREEZE" ITALIANS

This is the last month to requeen. Have you culled those old and failing queens? Order yours now. Over 30% more "GULF BREEZE" sold this year than last.

Prices: 1-24 80c ea. 25 or more 75c ea. air mailed

Bessonet Bee Company **Donaldsonville, La.**

Thanks to our many customers for business given us this year. We are looking forward to serving you next year.

Calvert Apiaries **Calvert, Alabama**

Bring Your Dreams Down to Earth
Buy U. S. Savings Bonds